CE5000 Series

CUTTING PLOTTER

SERVICE MANUAL

MANUAL NO. CE5000-UM-251

GRAPHTEC

CE5000-UM-251-09-9370

HISTORY OF REVISIONS

No.	Date issued	Description of revision	Page	Edition
1	06.07.06	First Printing	All	01
2	06.09.13	Information for the 9e60p was added.	10-1,10-12	02
3	06.09.13	Part list for the steel stand ST0068 was added.	10-9	02
4	06.09.13	Part number for the main board of the CE5000-40 was corrected.	4-1,10-1	02
5	06.09.26	Procedure of upgrading the system firmware was corrected.	7-13	03
6	06.09.26	Section numbers were corrected.	11-10 to 11-12	03
7	06.11.07	Procedure of adjusting the pen force was corrected.	7-4	04
8	06.11.16	Footer of page was wrong.	4-1	05
9	06.11.16	Cutting Mat 40 of part number was updated.	4-1,10-3	05
10	06.11.16	Cutting Mat 120 of part number was updated.	4-1,10-3	05
11	07.02.28	Part number for the cutter pen holder was corrected.	10-6	06
12	07.02.28	The cutter pen holder and the pen holder thumb screw L10 were deleted from recommended parts list.	4-1	06
13	07.05.18	CE5000-120AP information added.	All	07
14	07.10.19	Remark of the Main Board of CE5000-120AP was corrected.	4-1	08
15	08.03.04	Discription for the roll stocker was corrected.	10-15	09

CONTENTS

1. INTRODUCTION 1-1
   1.1 Main Specifications 1-1
   1.2 External Dimensions 1-3
2. PARTS NAMES and FUNCTIONS 2-1
   2.1 Parts Names and Functions 2-1
   2.2 Assembling the Stand 2-5
   2.3 Attaching the Basket (CE5000-60/120: Optional) 2-12
3. OPERATIONS 3-1
   3.1 Control Panel 3-1
   3.2 Menu List 3-2
   3.3 Description of Special Functions A 3-5
   3.4 Description of Special Functions B 3-8
4. RECOMMENDED PARTS LIST 4-1
5. LIST OF TOOLS 5-1
   5.1 Tools 5-1
   5.2 Greasing And Gluing Points 5-1
   5.3 Subparts List 5-1
6. DISASSEMBLY AND REASSEMBLY 6-1
   6.1 Exterior Parts 6-1
      6.1.1 How to Replace the Right Side Cover 6-1
      6.1.2 How to Replace the Left Side Cover 6-1
      6.1.3 How to Replace the Center Cover (CE5000-40/60) 6-2
      6.1.4 How to Replace the Center Cover (CE5000-120/120AP) 6-3
      6.1.5 How to Replace the Front Guide (CE5000-40/60) 6-4
      6.1.6 How to Replace the Front Guide (CE5000-120/120AP) 6-5
      6.1.7 How to Replace the Rear Guide 6-8
   6.2 Mechanical Parts 6-10
      6.2.1 How to Replace the Front and Rear Media Sensors 6-10

6.2.2 How to Replace the Push Roller 6-11
6.2.3 How to Replace the Push Roller Arm 6-12
6.2.4 How to Replace the Cam Sensor Board 6-14
6.2.5 How to Replace the Pen Block 6-15
6.2.6 How to Replace the Push Roller Sensor 6-17
6.2.7 How to Replace the Y-relay Board 6-18
6.2.8 How to Replace the Cutting Mat 6-19
6.2.9 How to Replace the Control Panel Relay Board, LCD and Membrane Switch Panel 6-20
6.2.10 How to Replace the Y-belt 6-22
6.2.11 How to Replace the Y-motor 6-24
6.2.12 How to Replace the X-motor 6-26
6.2.13 How to Replace the Y-flexible Cable 6-28
6.2.14 How to Replace the Vacuum Fan 6-31
6.2.15 How to Replace the Main Board 6-32
6.2.16 How to Replace the Power Supply 6-33
6.2.17 How to Replace the Drive Roller 6-34

7. ELECTRICAL ADJUSTMENTS 7-1

7.1 DIP Switch Settings 7-1
7.2 List of Items Requiring Readjustment 7-1
7.3 Explanation of the Values of the Main Board Settings 7-2
7.4 Clearing the Non-Volatile RAM 7-3
7.5 Adjusting the Pen Force 7-4
7.6 Adjusting the Distance Accuracy 7-6
7.7 Inputting the Servo Gain 7-8
7.8 Setting the Auto-Registration Mark Sensor Option 7-9
7.9 Adjusting the Offset of the Auto-Registration Mark Sensor 7-10
7.10 Upgrading the System Firmware 7-13
7.11 Adjusting the Pen Exchange Y Direction Value (CE5000-120AP) 7-14
7.12 Adjusting the Pen Exchange Height Value (CE5000-120AP) 7-15
7.13 Adjusting the Spacing Between Pen 1 and Pen 2 (CE5000-120AP) 7-16

8 SERVICE MODES 8-1
8.1 Sensor Test Mode 8-1
8.2 Control Panel Membrane Switch Test Mode 8-2
8.3 Clear Setup Mode 8-3
9. TROUBLESHOOTING 9-1
9.1 The Plotter is Turned On But Doesn't Operate 9-1
9.2 Media Loading Operations 9-2
9.3 Cutting Operations 9-3
10. PARTS LIST 10-1
10.1 Outer Casing 10-1
10.2 Main Frame for CE5000-40/60 10-3
10.3 Main Frame CE5000-120/120AP 10-5
10.4 Pen Block 10-7
10.5 Wiring Harness 10-9
10.6 Stand (CE5000-60, CE5000-120, CE5000-120AP) 10-10
10.7 Option Basket 10-15
10.8 Other Parts 10-15
11. BLOCK DIAGRAMS AND CIRCUIT DIAGRAMS 11-1
11.1 Block Diagrams 11-1
11.1.1 Block Diagram for CE5000-120 11-1
11.1.2 Block Diagram for CE5000-40/60 11-2
11.2 Circuit Diagrams 11-3
11.2.1 Main Board Top Section (PN5043-01A) 11-3
11.2.2 Main Board Connector Block Section (PN5043-01A) 11-4
11.2.3 Main Board CPU Block Section (PN5043-01A) 11-5
11.2.4 Main Board Motor Drive Section (PN5043-01A) 11-6
11.2.5 Main Board FPGA Section (PN5043-01A) 11-7
11.2.6 Main Board Interface Section (PN5043-01A) 11-8
11.2.7 Main Board Memory Block Section (PN5043-01A) 11-9
11.2.8 Relay and Sensor Board Section 11-10
11.2.9 Control Panel Membrane Switch Panel Section 11-11

11.2.10 120-Relay Board Section 11-12
11.2.11 120-Pen Encoder Flexible Cable Section (PN5043-10) 11-12

1. INTRODUCTION

CAUTION

DOUBLE POLE/NEUTRAL FUSING

1.1 Main Specifications

CE5000-40CRP/60/120

Item	CE5000-40CRP	CE5000-60	CE5000-120
CPU	32-bit CPU		
Configuration	Grit rolling		
Drive system	Digital servo		
Maximum cutting area	375 mm x 50 m	603 mm x 50 m	1213 mm x 50 m
Range of guaranteed precision	356 mm x 5 m*1	584 mm x 5 m*1	1194 mm x 5 m*1
Compatible media widths	Minimum: 50 mm Maximum: 482 mm (19 inches)	Minimum: 50 mm Maximum: 712 mm (28 inches)	Minimum: 85 mm Maximum: 1346 mm (52 inches)
Maximum media thickness	0.25 mm		
Maximum cutting speed	60 cm/s (in all directions)		100 cm/s (45° direction)
Specifiable cutting speeds	1–10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60 cm/s		1–10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, * cm/s
Cutting force	0.2 to 2.3 N (20 gf to 300 gf) (31 levels)		0.2 to 4.4 N (20 gf to 450 gf) (38 levels)
Minimum character size	Approximately 5 mm for alphanumeric characters (varies depending on the medium, font, etc.)		
Mechanical resolution	0.005 mm		
Programmable resolution	GP-GL: 0.1/0.05/0.025/0.01 mm; HP-GL™ *2: 0.025 mm		
Repeatability precision	0.1 mm or less per 2 m*1		
No. of pens mountable	1 pen		
Compatible cutter type	Supersteel cutter blades		
Compatible pen type	Water-based fiber-tip pens		
Compatible cutting film	Marking film (PVC, fluorescent, or reflective film) up to 0.25 mm in thickness (excluding high-luminosity reflective film)		
Interfaces	RS-232C/USB (Full Speed)		
Buffer capacity	2 MB		
Command modes	GP-GL, HP-GL™ *2 (selected on the control panel)		
Display panel	Liquid crystal display (16 characters x 1 row)		
Rated power supply	100 to 240 V AC, 50/60 Hz		
Power consumption	100 VA		
Operating environment	10°C to 35°C, 35% to 75% RH		
Conditions for guaranteed precision	16°C to 32°C, 35% to 70% RH		
External dimensions (W x D x H)	Approx. 623 x 285 x 223 mm	Approx. 851 x 585 x 1004 mm*3	Approx. 1,487 x 744 x 1194 mm*3
Weight	Approx. 9.4 kg	Approx. 25 kg*3	Approx. 39.1 kg*3

*1: Varies depending on the type of Graphtec-authorized film and the cutting conditions

*2: HP-GL™ is a registered trademark of Hewlett-Packard Company.

*3: Including the stand

CE5000-120AP

Item	CE5000-120AP
CPU	32-bit CPU
Configuration	Grit rolling
Drive system	Digital servo
Maximum cutting area	1164 mm x 50 m
Maximum guaranteed cutting area	1164 mm x 3 m*1
Compatible media widths Media widths	160 to 270, 300 to 400, 440 to 540, 580 to 680, 710 to 810, 850 to 950, 990 to 1090, 1120 to 1220 mm (the effective drawing area is the maximum obtainable area for the corresponding medium width) Up to 1180 mm when roll media (2-inch core) is used
Maximum roll outer diameter	190 mm
Media types	Fine quality paper for apparel patterns (64 to 130 g/m²) Roll media diameter: 2-inch, 3-inch
Maximum cutting speed	60 cm/s
Specifiable cutting speeds	1 to 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60 cm/s
Cutting force	20 to 300 gf (31 levels)
Mechanical resolution	0.005 mm
Programmable resolution	GP-GL: 0.1/0.5/0.025/0.01 mm, HP-GL™ *3: 0.025 mm
Repeatability precision Mechanical precision	Within 0.1 mm/3m*2
Guaranteed precision	Within ±0.5 mm/3 m, up to a maximum of five consecutive pages*1 (cutter pen/plotter pen exchange precision is also included)
No. of pens mountable	2
Compatible cutter blade type	Supersteel
Compatible pen type	Water-based fiber-tip pens, Oil-based ballpoint pen
Interfaces	RS-232C/USB 2.0 (Full speed)
Buffer capacity	2 MB
Command modes	GP-GL, HP-GL™ *3 (selected on the control panel)
Display panel	LCD (16 characters x 1 row)
Rated power supply	100 to 240 V AC, 50/60 Hz
Power consumption	100 VA
Operating environment	10°C to 35°C, 35% to 75% RH
Conditions for guaranteed precision	16°C to 32°C, 35% to 70% RH
External dimensions (W x D x H)	Approx. 1,487 x 656 x 1189 mm
Weight	43 kg

*1: When the following Graphtec-specified conditions have been met:

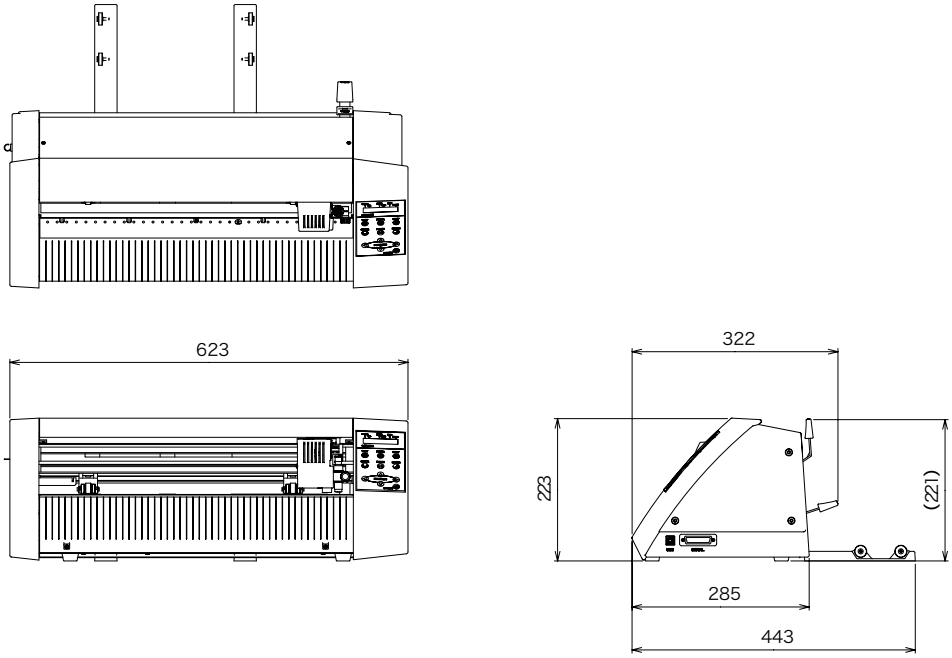
- Graphtec-specified paper must be used for cutting/plotting.
- “PAPER LOAD: 2” must be specified for the PAPER LOAD setting and “UNTIL: 180 seconds” for the PAPER READY TIME setting.
- After five pages have been cut/plotted consecutively, the paper must be reloaded.
- If expansion or contraction of the paper due to temperature and/or humidity changes has occurred during a cutting or plotting operation, the following margins of error are added to the repeatability precision value: 0.1 mm/°C, 0.3 mm/10% RH.

*2: The precision specification is the precision that was obtained when Graphtec’s mylar film was used to measure the mechanical precision. Please note that as only fine quality pattern paper can be used with this device, the precision may differ slightly.

*3: HP-GL™ is a registered trademark of Hewlett-Packard Company.

1.2 External Dimensions

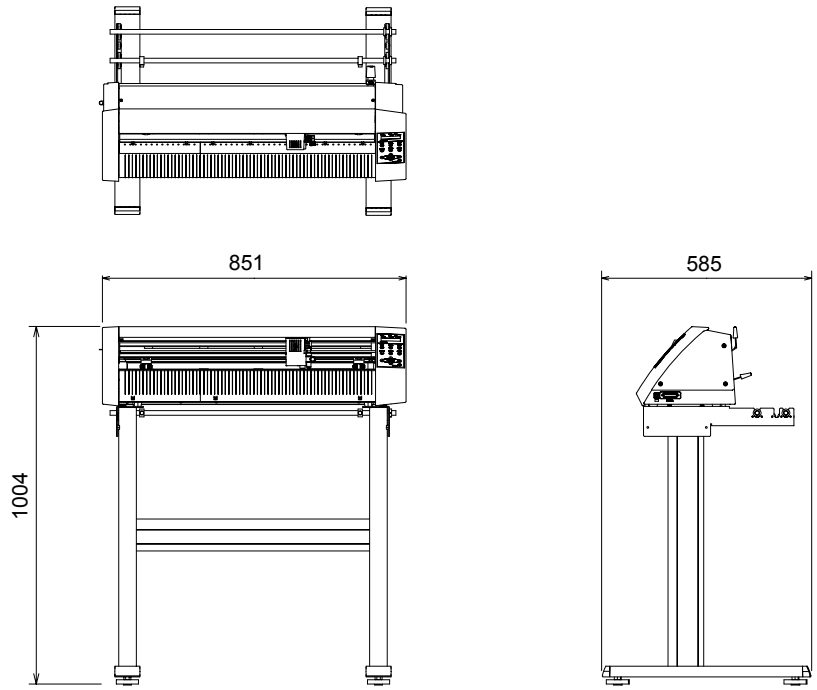
CE5000-40CRP



Units: mm

Dimensional accuracy: ±5 mm

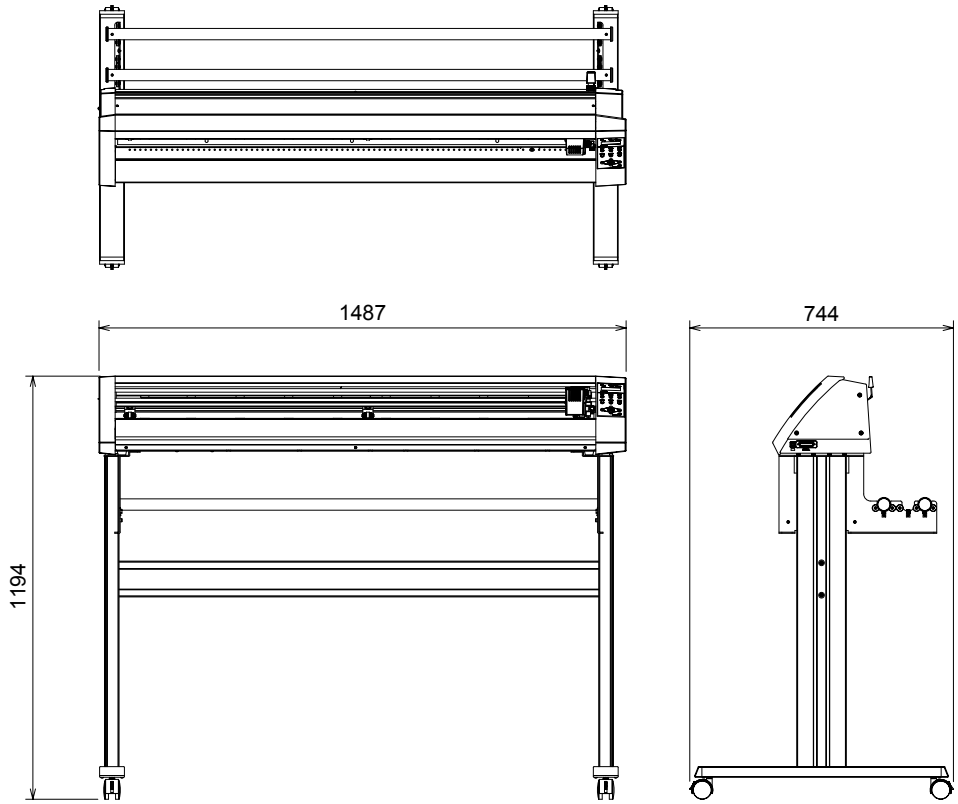
CE5000-60



Units: mm

Dimensional accuracy: ±5 mm

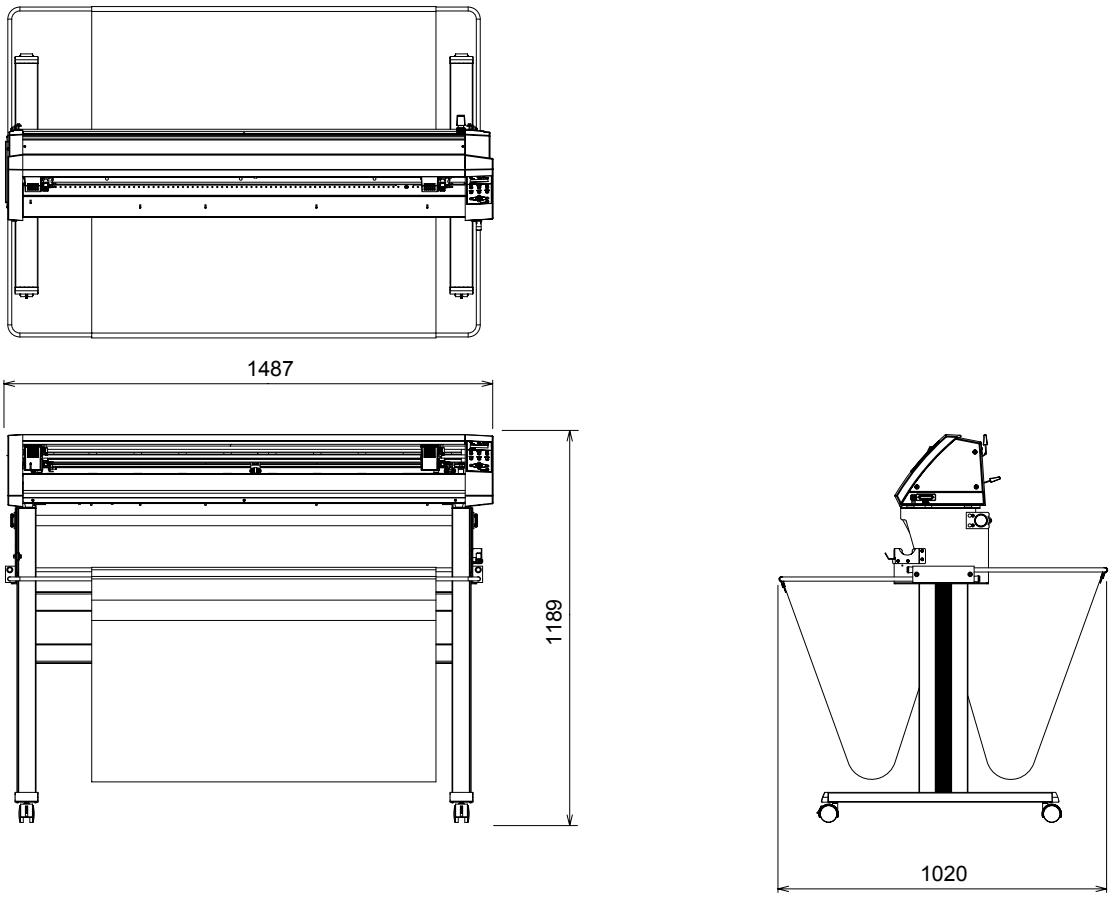
CE5000-120



Units: mm

Dimensional accuracy: ±5 mm

CE5000-120AP



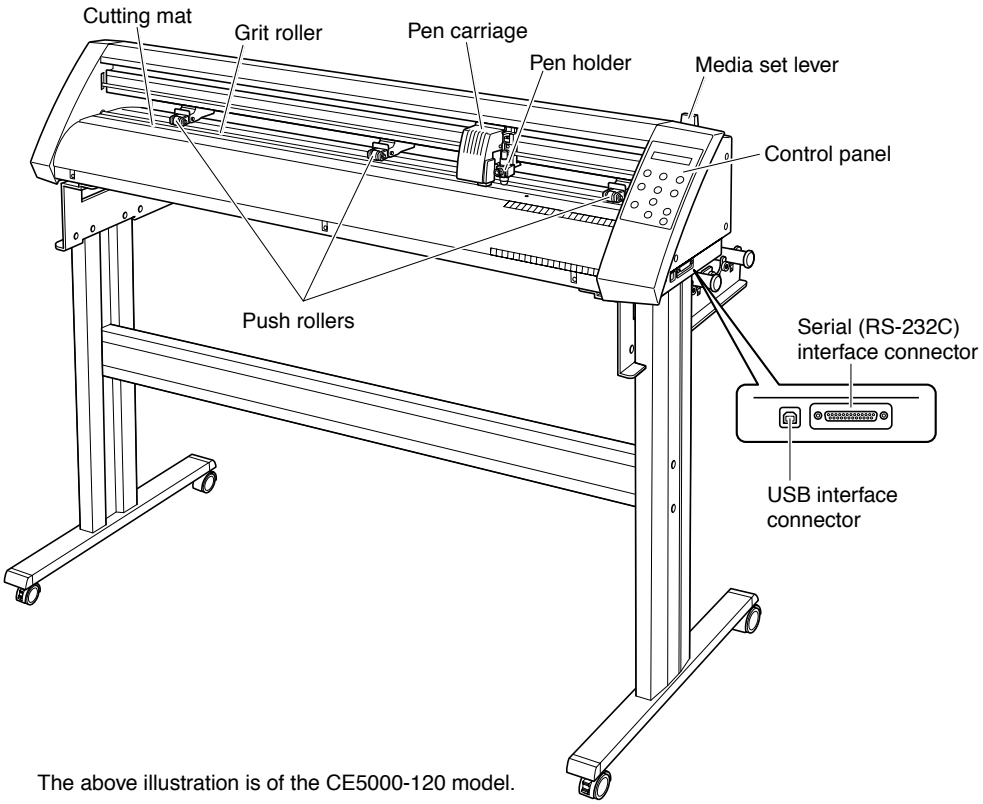
Units: mm

Dimensional accuracy: ±5 mm

2. PARTS NAMES and FUNCTIONS

2.1 Parts Names and Functions

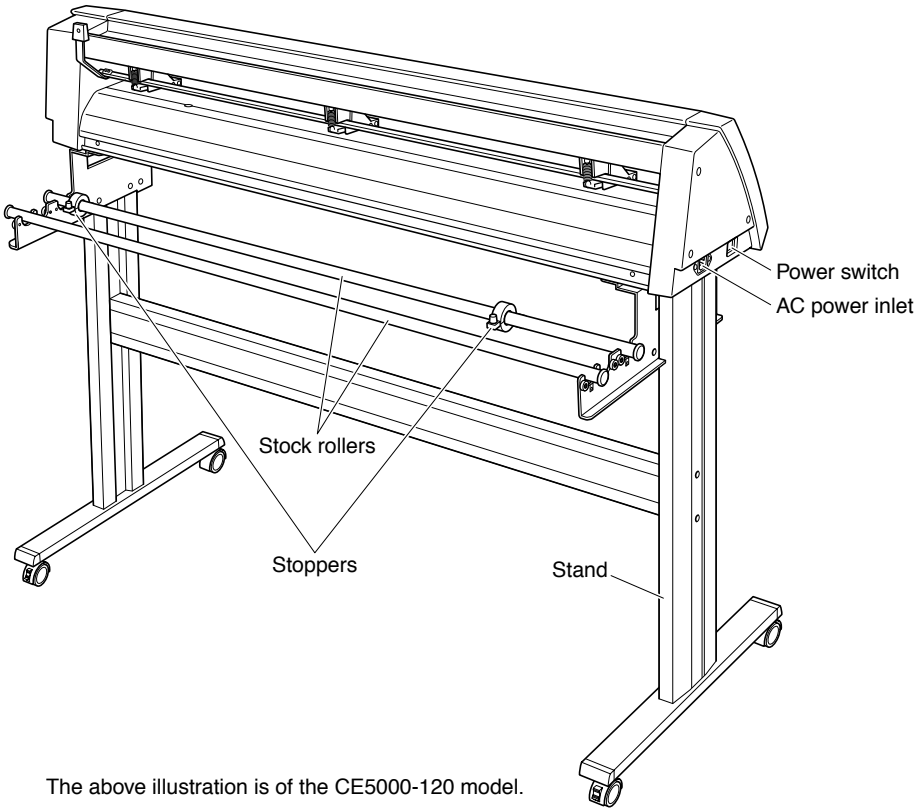
Front View



The above illustration is of the CE5000-120 model.

Cutting mat	: Cutting or plotting is performed on this mat.
Grit roller	: Feeds the medium backward or forward
Push rollers	: Push the medium against the grit roller
Pen carriage	: Moves the cutter pen to the left and right
Pen holder	: Holds the cutter pen and moves it up and down
Media set lever	: Raises or lowers the push rollers during loading of a medium
Control panel	: Used to operate the cutting plotter and set functions
USB interface connector	: Used to connect a USB cable
Serial (RS-232C) interface connector	: Used to connect an RS-232C serial interface cable

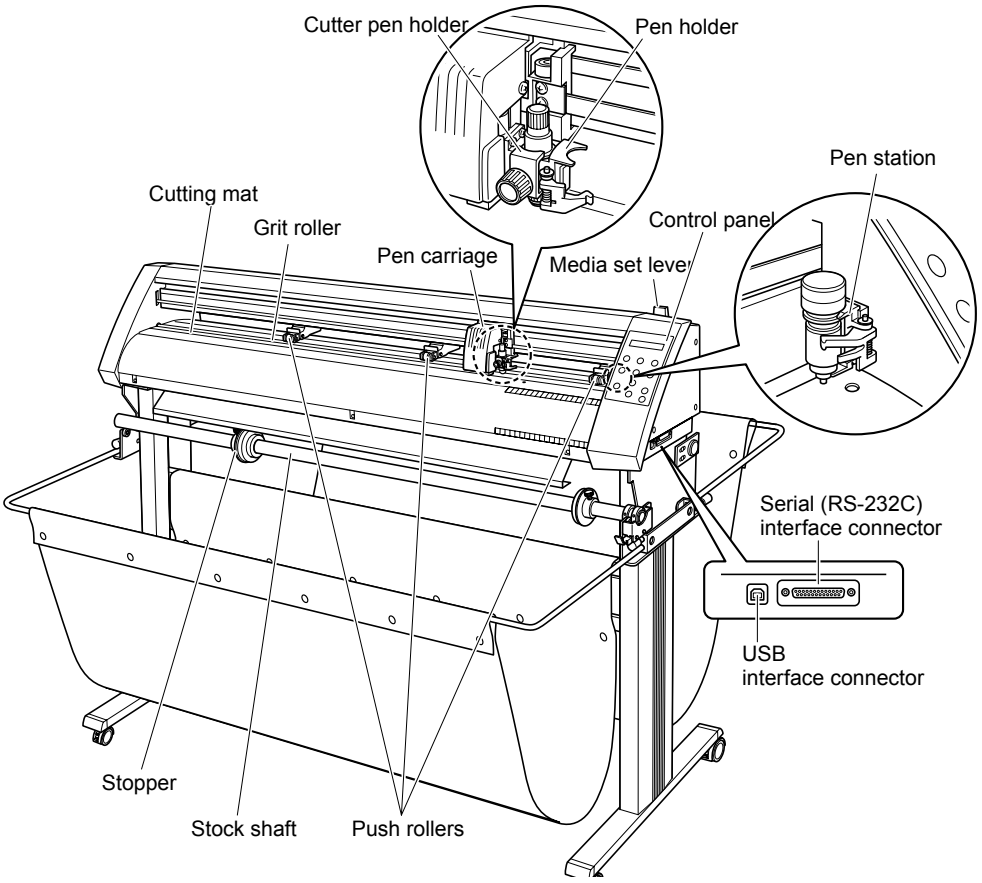
Rear View



The above illustration is of the CE5000-120 model.

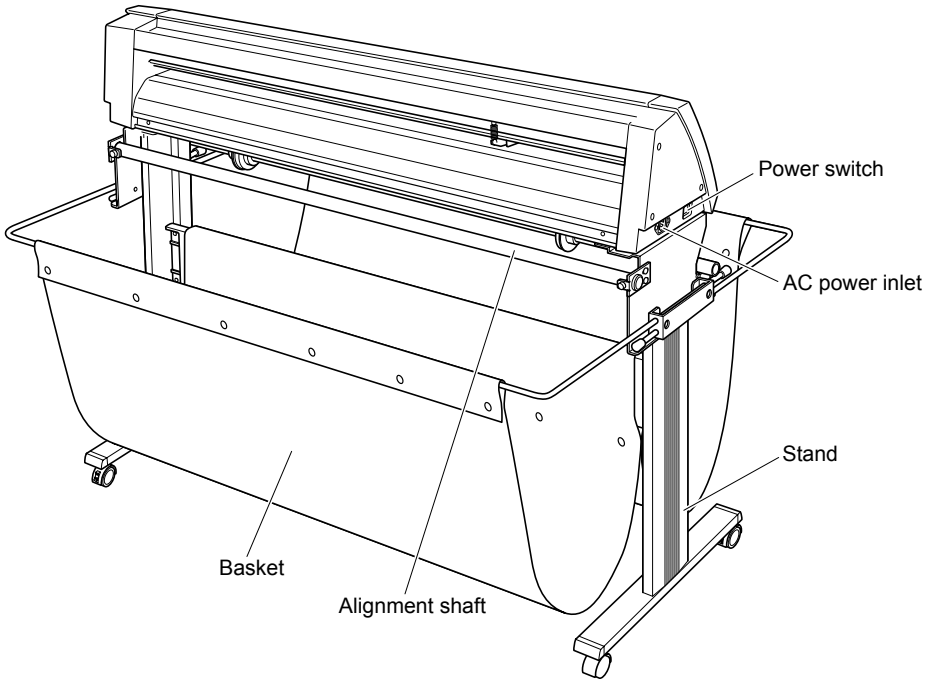
AC power inlet	: Connects the power cord to the cutting plotter
Power switch	: Turns the power supply to the cutting plotter on or off
Stand	: Supports the cutting-plotter unit
Stock rollers	: Hold the roll media
Stoppers	: Used to determine the position of the roll media loaded

Front View (CE5000-120AP)



Cutting mat	: Cutting or plotting is performed on this mat.
Grit roller	: Feeds the medium backward or forward.
Push rollers	: Pushes the medium against the grit rollers.
Pen carriage	: Moves the cutter pen to the left and right.
Cutter pen holder	: Hold the cutter pen and moves it up and down.
Pen holder	: Holds the pen and moves it up and down.
Pen station	: Used to mount the pen before it is used.
Media set lever	: Raises or lowers the push rollers during loading of a medium.
Control panel	: Used to operate the cutting plotter and set functions.
USB interface connector	: Used to connect a USB cable.
Serial (RS-232C) interface connector	: Used to connect an RS-232C serial interface cable.
Stock shaft	: Used to load roll media.
Stoppers	: Used to hold a roll medium in place (left and right, one each).

Rear View (CE5000-120AP)



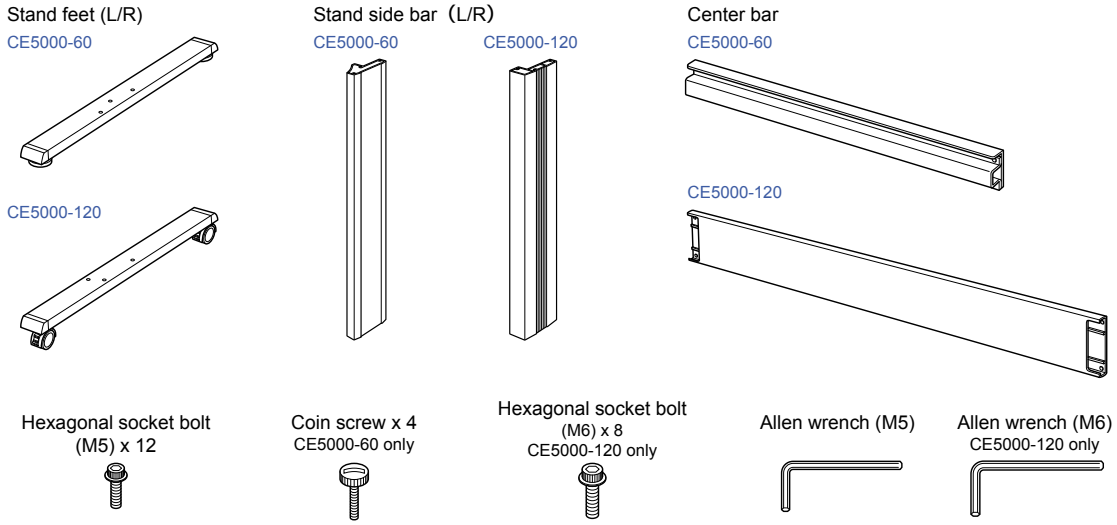
AC power inlet	: Connects the power cord to the cutting plotter.
Power switch	: Turns the power supply to the cutting plotter on or off.
Stand	: Supports the cutting-plotter unit.
Alignment shaft	: Used when loading roll media.
Basket	: Used to catch media after it has been cut.

2.2 Assembling the Stand

CE5000-60/120:Standard

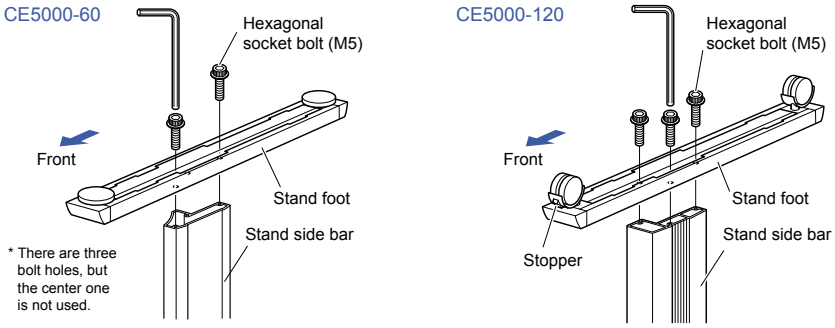
Stand Construction

The stand is made up of the following parts.

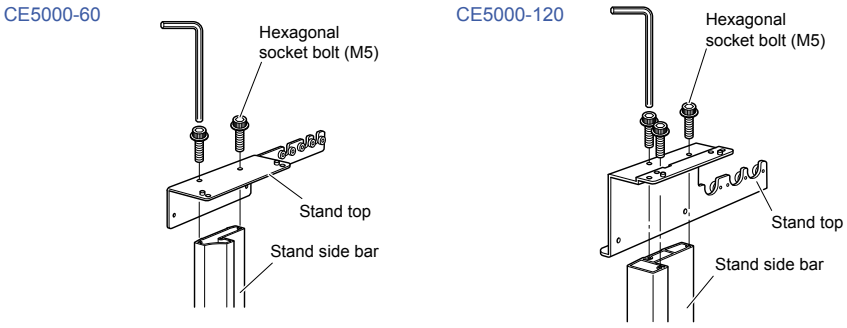


Stand Assembly Instructions

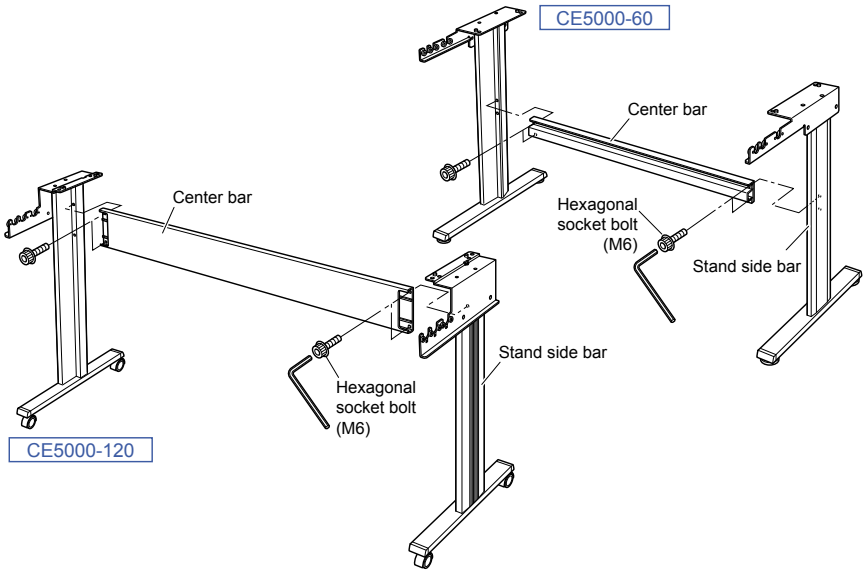
(1) Fasten the stand feet (L/R) to the side bars (L/R) with the hexagonal socket bolts (M5), using the Allen wrench.



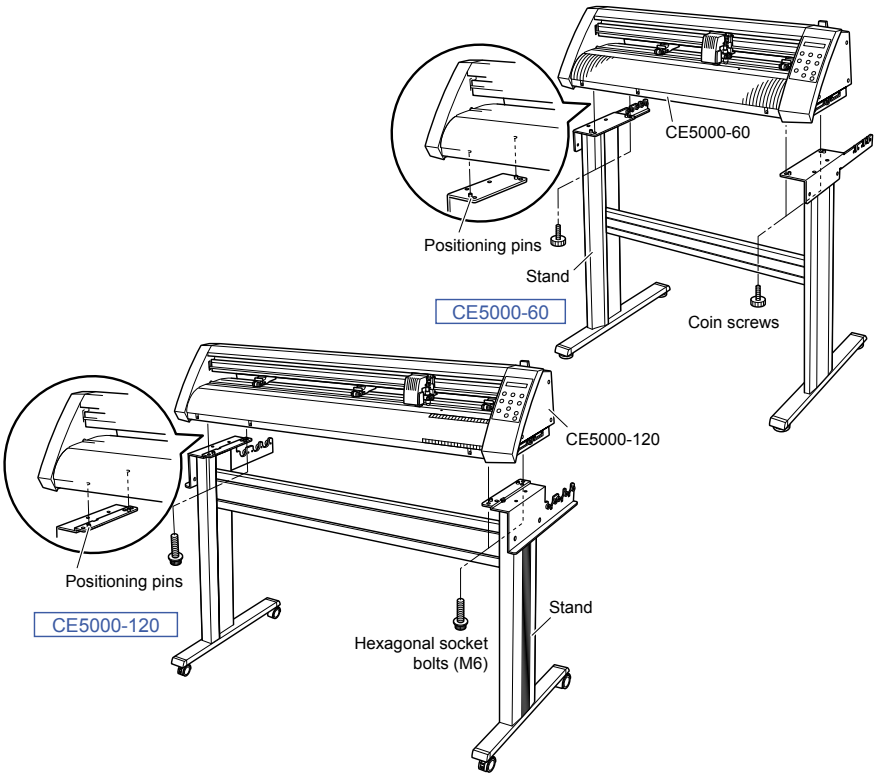
(2) Fasten the stand tops (L/R) to the stand side bars (L/R) with the hexagonal socket bolts (M5), using the Allen wrench.



(3) Loosely fasten the stand side bars (L/R) to the center bar with the hexagonal socket bolts (CE5000-60: M5, CE5000-120: M6), using the Allen wrench.



(4) Mount the CE5000 cutting plotter on the stand by inserting the positioning pins on the stand into the positioning holes on the underside of the cutting plotter. Fasten using the four coin screws or hexagonal socket bolts (M6).

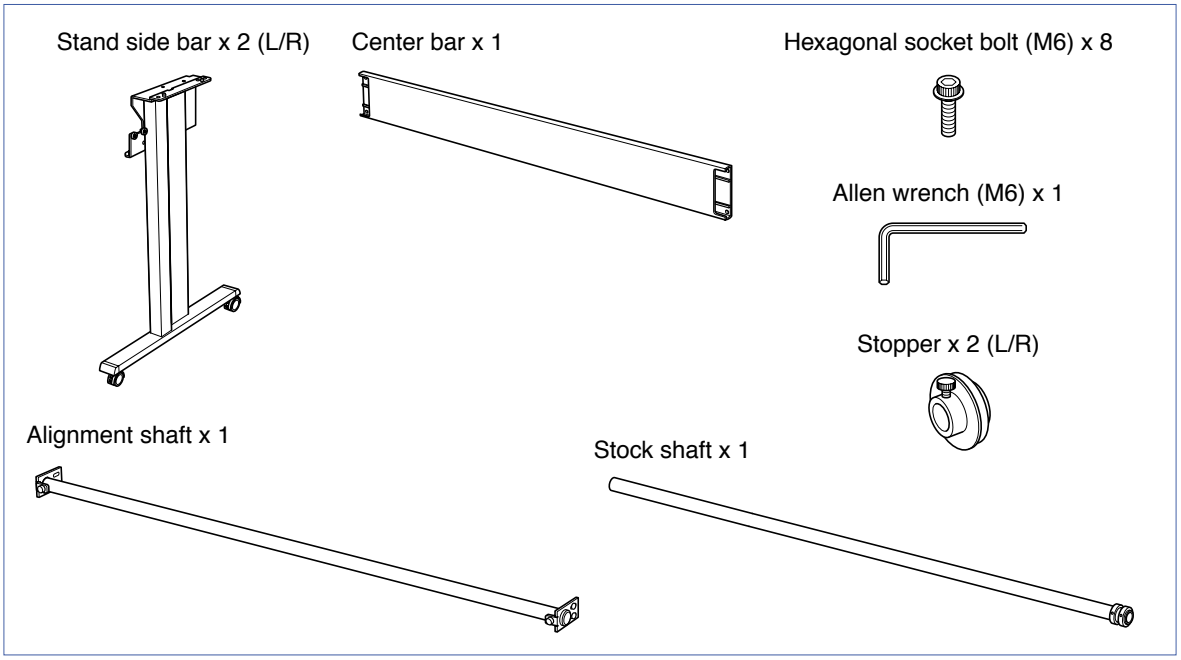


(5) Tighten the hexagonal socket bolts loosely fastened in step 3.

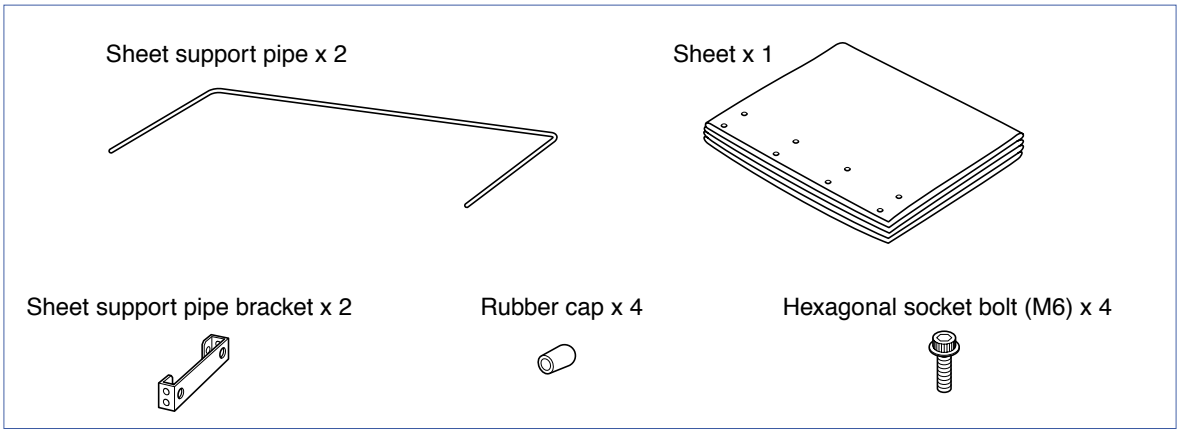
CE5000-120AP:Standard

Stand Construction

The stand is made up of the following parts.

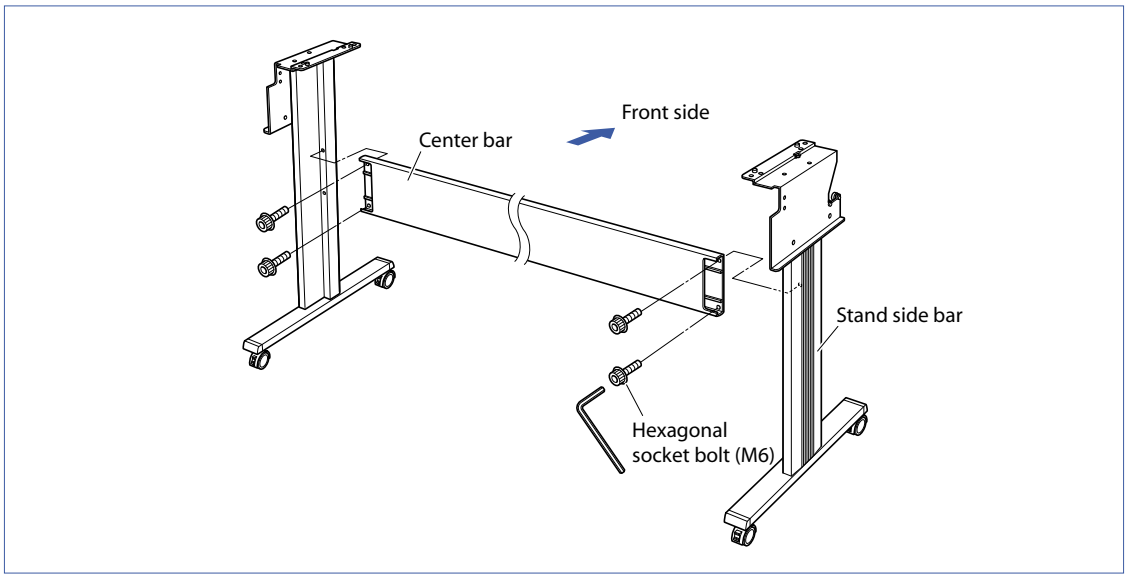

Stand side bar x 2 (L/R)
Center bar x 1
Hexagonal socket bolt (M6) x 8
Allen wrench (M6) x 1
Stopper x 2 (L/R)
Alignment shaft x 1
Stock shaft x 1

Basket Construction

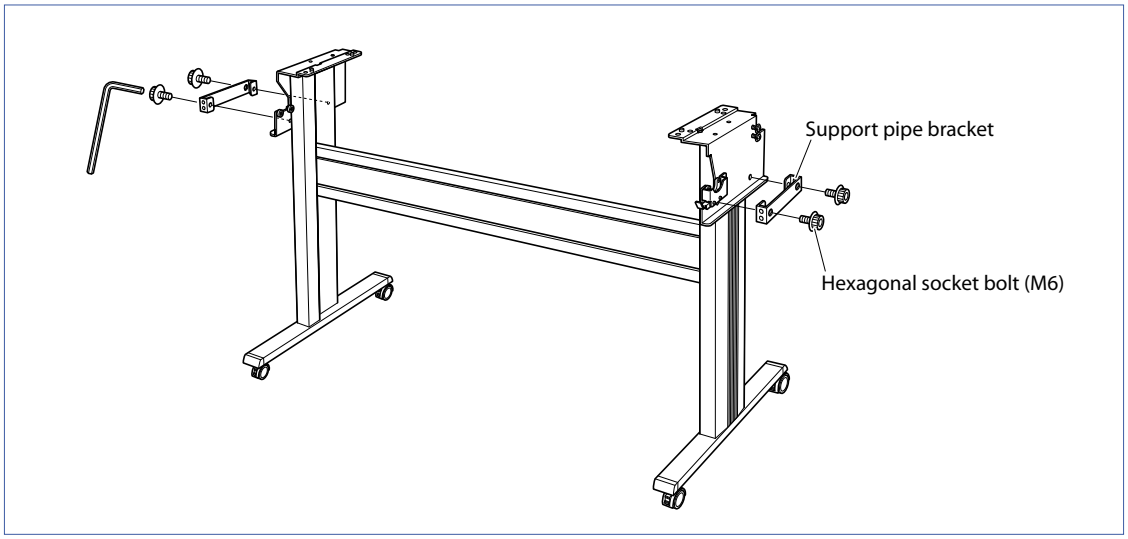


Stand Assembly Instructions

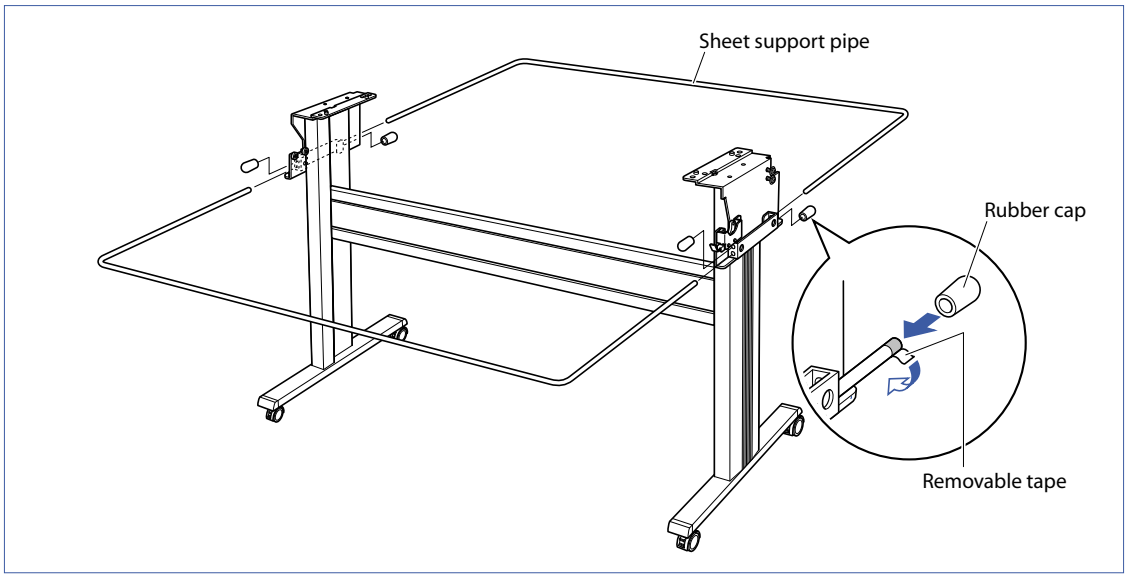
(1) Fasten the center bar to the stand side bars (L/R) temporarily with the hexagonal socket bolts (M6), using the Allen wrench.



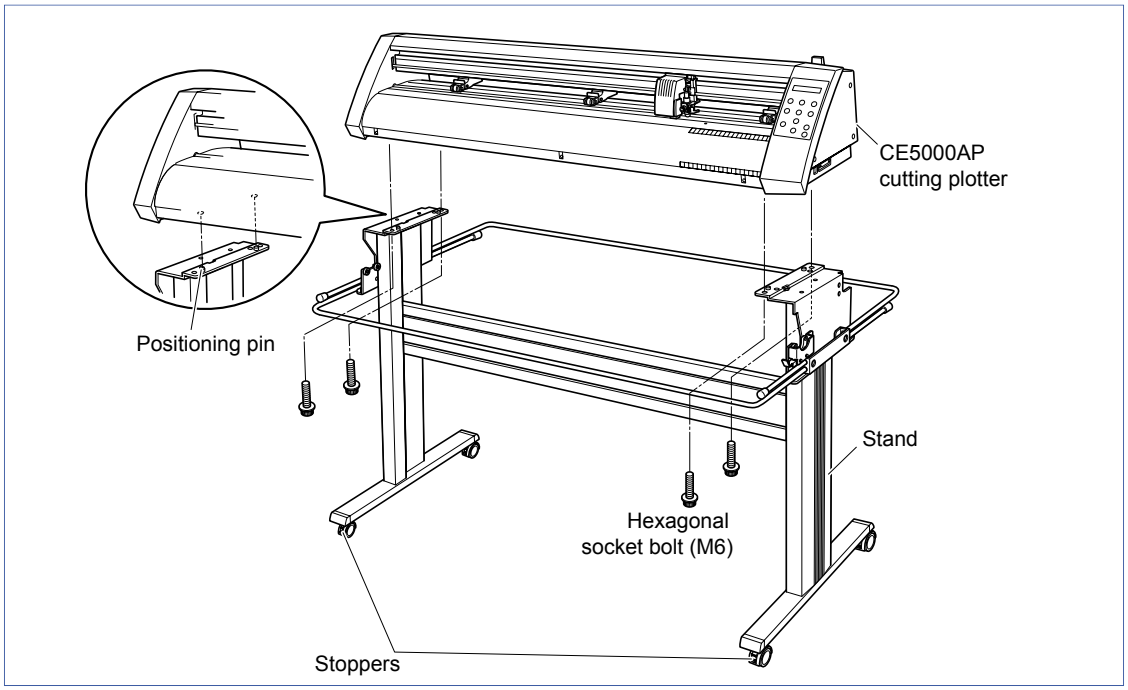
(2) Fasten the sheet support pipe brackets to the stand tops with the hexagonal socket bolts (M6).



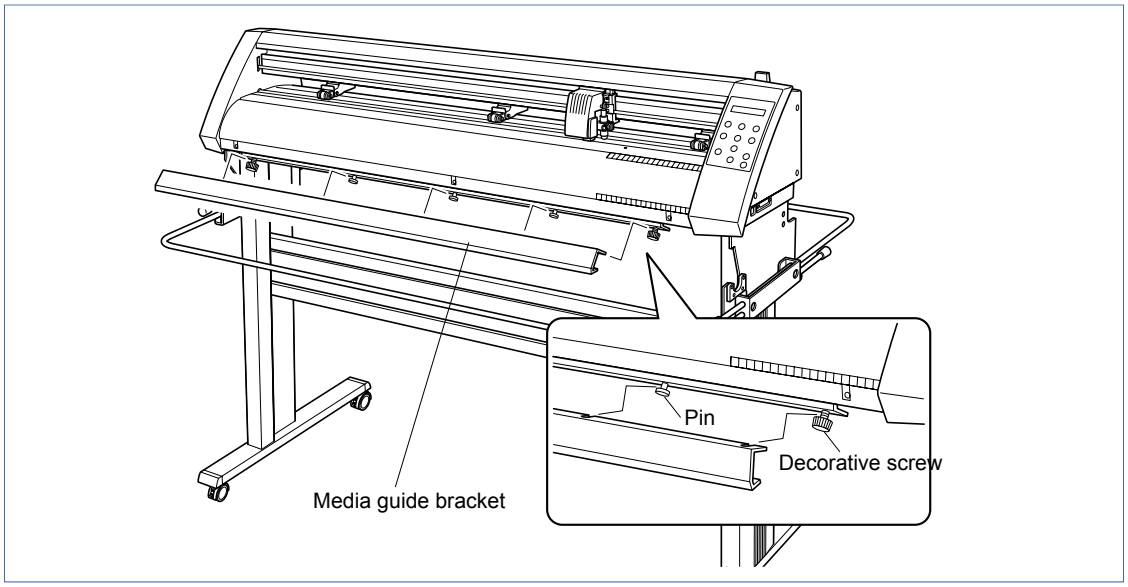
(3) Insert the sheet support pipes into the sheet support pipe brackets. Use the lower holes for the pipe that will be at the front of the cutting plotter, and the upper holes for the pipe that will be at the rear. Remove the tape from the ends of the pipes to expose the adhesive, and then fit the rubber caps on firmly.



(4) Mount the CE5000-120AP on the stand by inserting the positioning pins on the stand into the positioning holes on the underside of the cutting plotter and then fasten with the four hexagonal bolts (M6). Make sure that the casters with the stoppers are at the front.

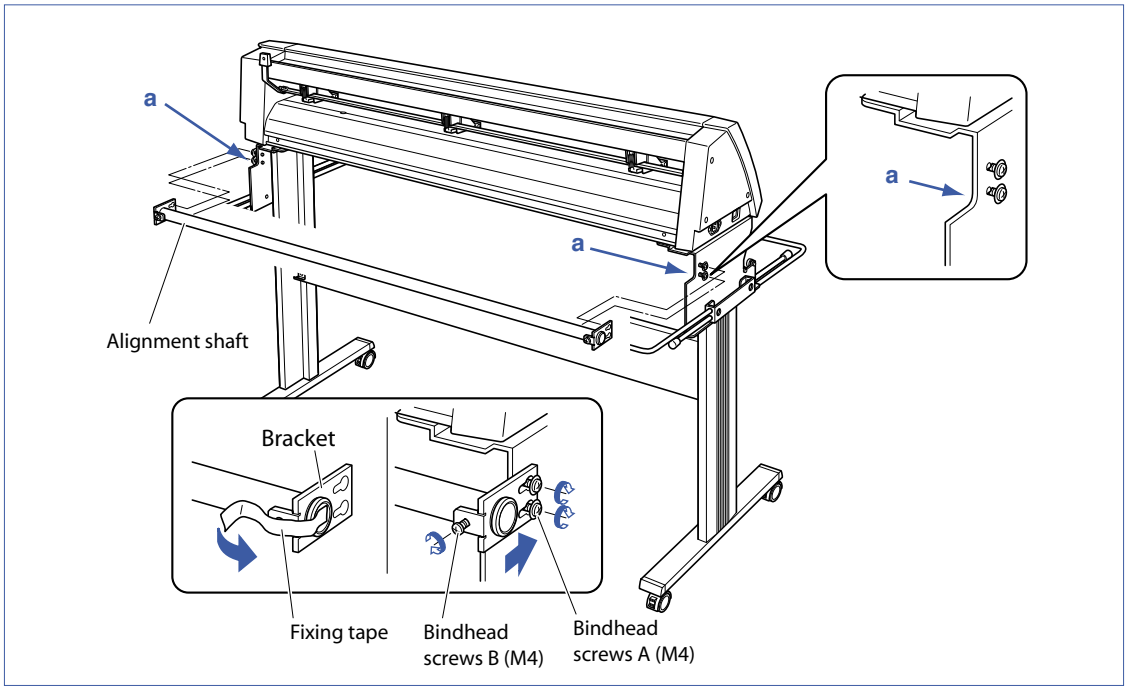


(5) Attach the media guide bracket to the underside of the front panel. Loosen the two decorative screws that are attached to the underside of the front panel (one on each side) by two or three turns, slot the bracket in, and then tighten the screws.



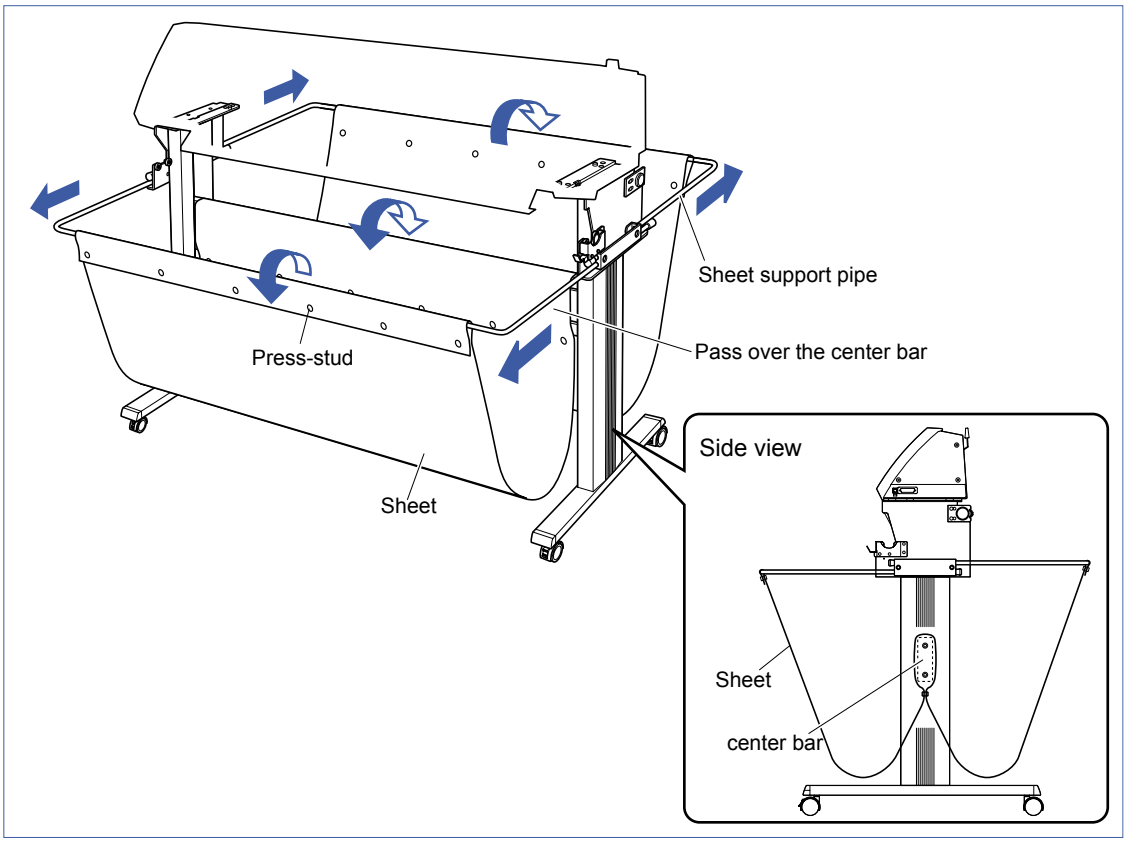
(6) Attach the alignment shaft to the top of the stand. Loosen the attached bindhead screws A (M4) two or three turns, and then insert the brackets on the end of the shaft using the elongated screw holes. Tighten the screws to hold the brackets in place. Push the shaft in until it contacts the curved area indicated by “a” in the figure below, and then tighten the A (M4) bindhead screws.

When the shaft has been attached, tighten the bindhead screws B (M4), and check that the shaft does not rotate. The bindhead screws B are screws to prevent the shaft from rotating. Position the shaft as desired (check both the rotation direction and the horizontal direction) and then tighten the screws.

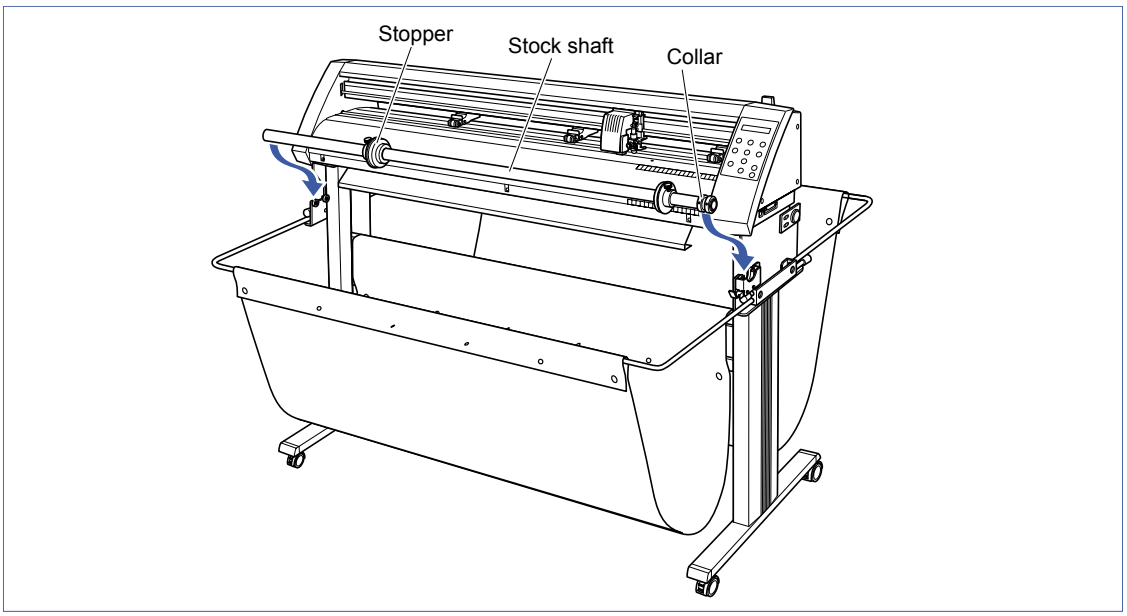


(7) Tighten all the hexagonal bolts that were temporarily fastened in step 1.

(8) Pull out the sheet support pipes, and attach the sheet to them. Pass the sheet over the center bar, and fasten the ends to the support pipes using the press-studs.



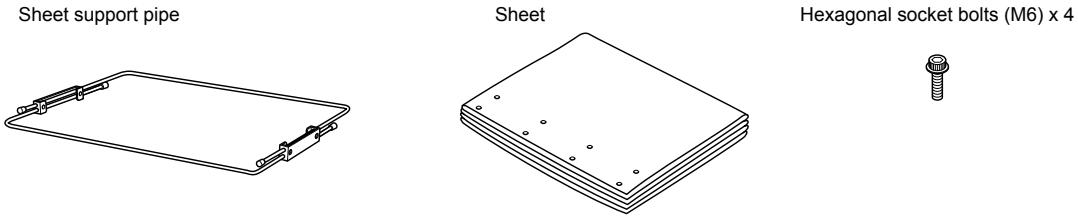
(9) Attach the stoppers (L/R) to the stock shaft and then attach the shaft to the top of the stand.



2.3 Attaching the Basket (CE5000-60/120: Optional)

Basket Construction

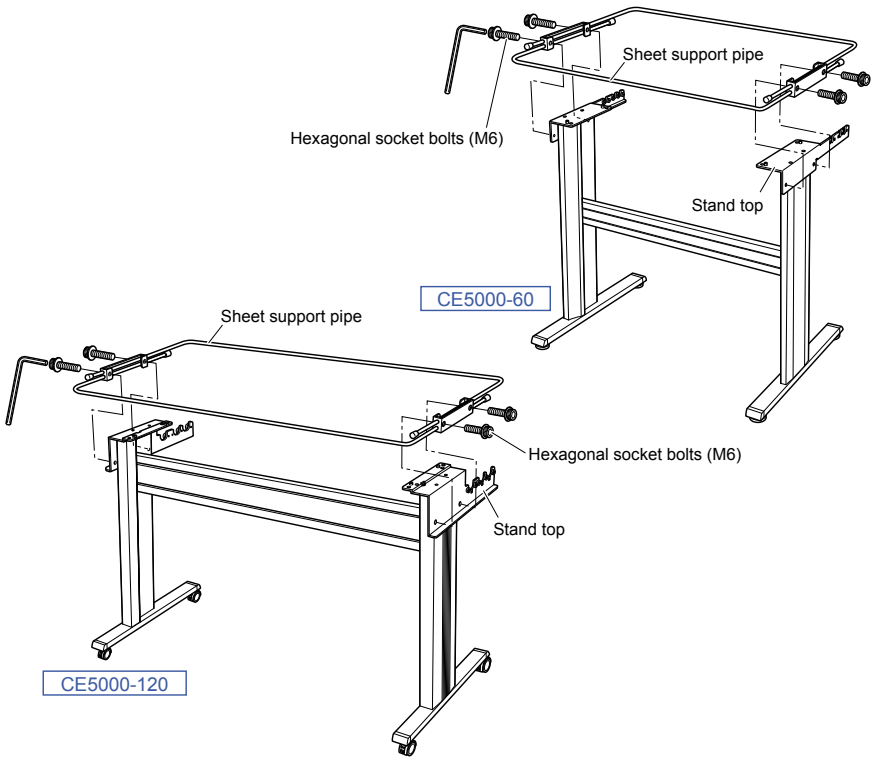
The basket is made up of the following parts.



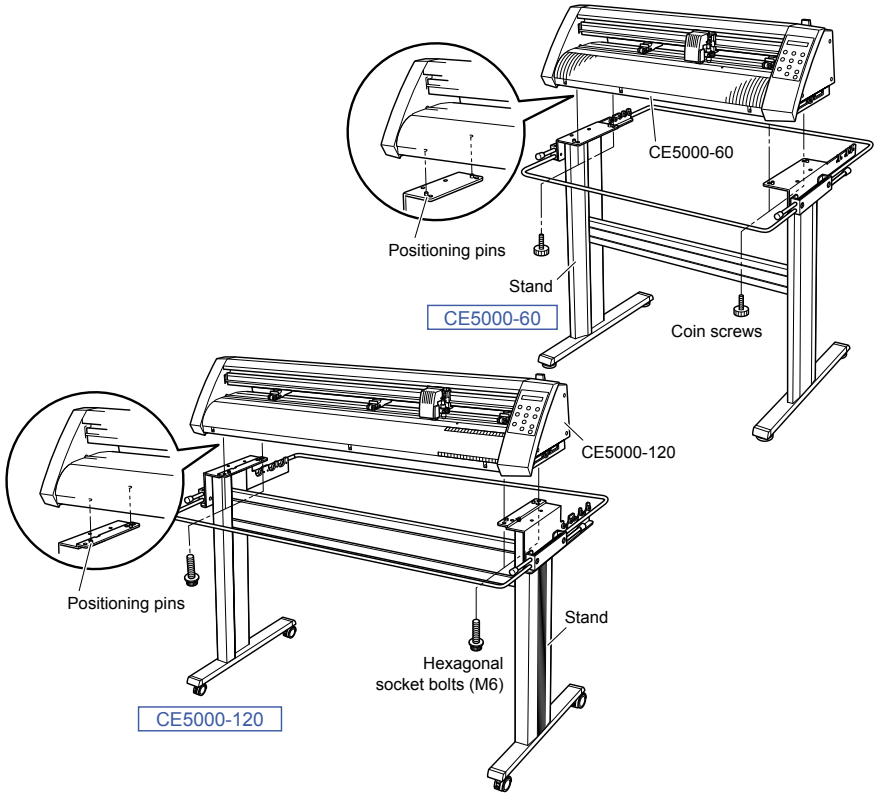
Basket Assembly Instructions

(1) Detach the four coin screws or hexagonal socket bolts (M6), and separate the cutting plotter from the stand.

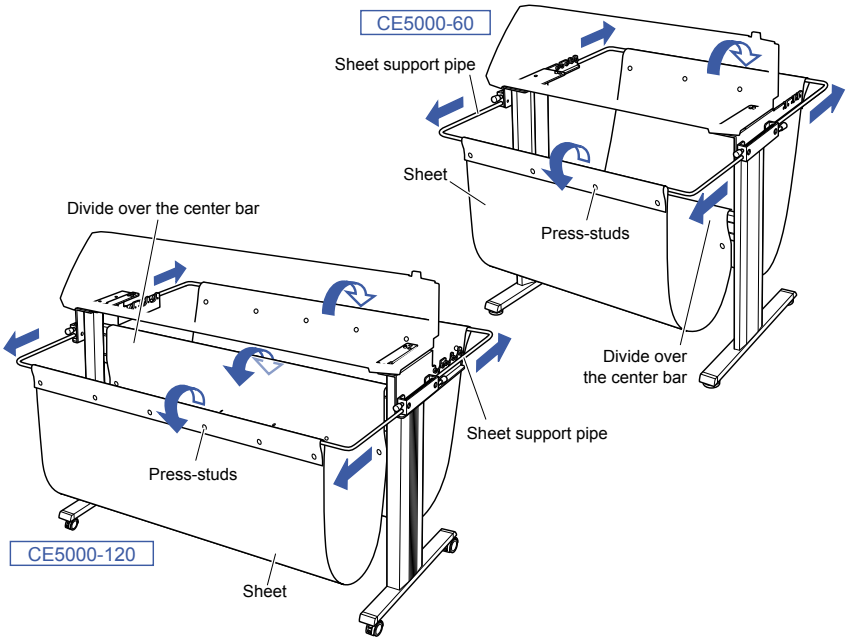
(2) Attach the sheet support pipe to the stand tops, and fasten using the hexagonal socket bolts.



(3) Mount the CE5000 cutting plotter on the stand by inserting the positioning pins on the stand into the positioning holes on the underside of the cutting plotter. Fasten using the four coin screws or hexagonal socket bolts (M6).

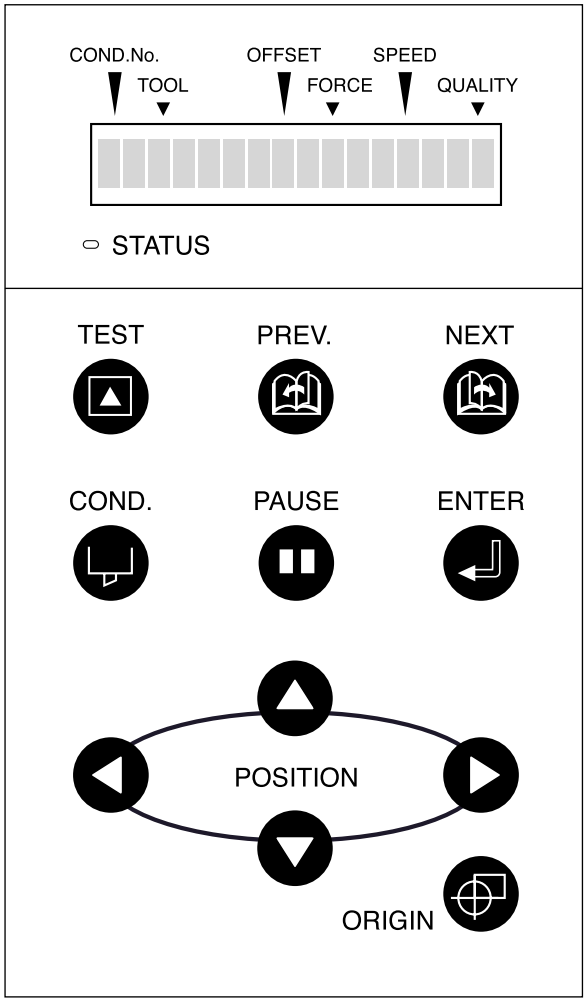


(4) Pull out the sheet support pipe and attach the sheet. Divide the sheet over the center bar, and then fasten the sheet to the sheet support pipe using the press-studs.



3. OPERATIONS

3.1 Control Panel



Indicator Lamp

STATUS.....Illuminates while the power to the cutting plotter is turned on, and goes out when the cutting plotter is in PAUSE status. This lamp flashes when data is being received from an interface, regardless of whether or not the cutting plotter is in PAUSE status.

Panel Keys

TEST.....Press this function key to conduct a cutting test and check the cutting conditions.

PREV. .....Press this function key to view the previous display on the LCD when in PAUSE status.

NEXT.....Press this function key to view the next display on the LCD when in PAUSE status.

COND. .....Press this function key to view the cutter-pen condition settings.

PAUSE.....Press this function key once in READY status to switch to PAUSE status in order to change the various settings. Press it again to cancel the PAUSE status. Pressing this key while cutting or plotting is in progress stops the cutting or plotting.

ENTER .....Pressing this function key registers the cutting or plotting conditions set.

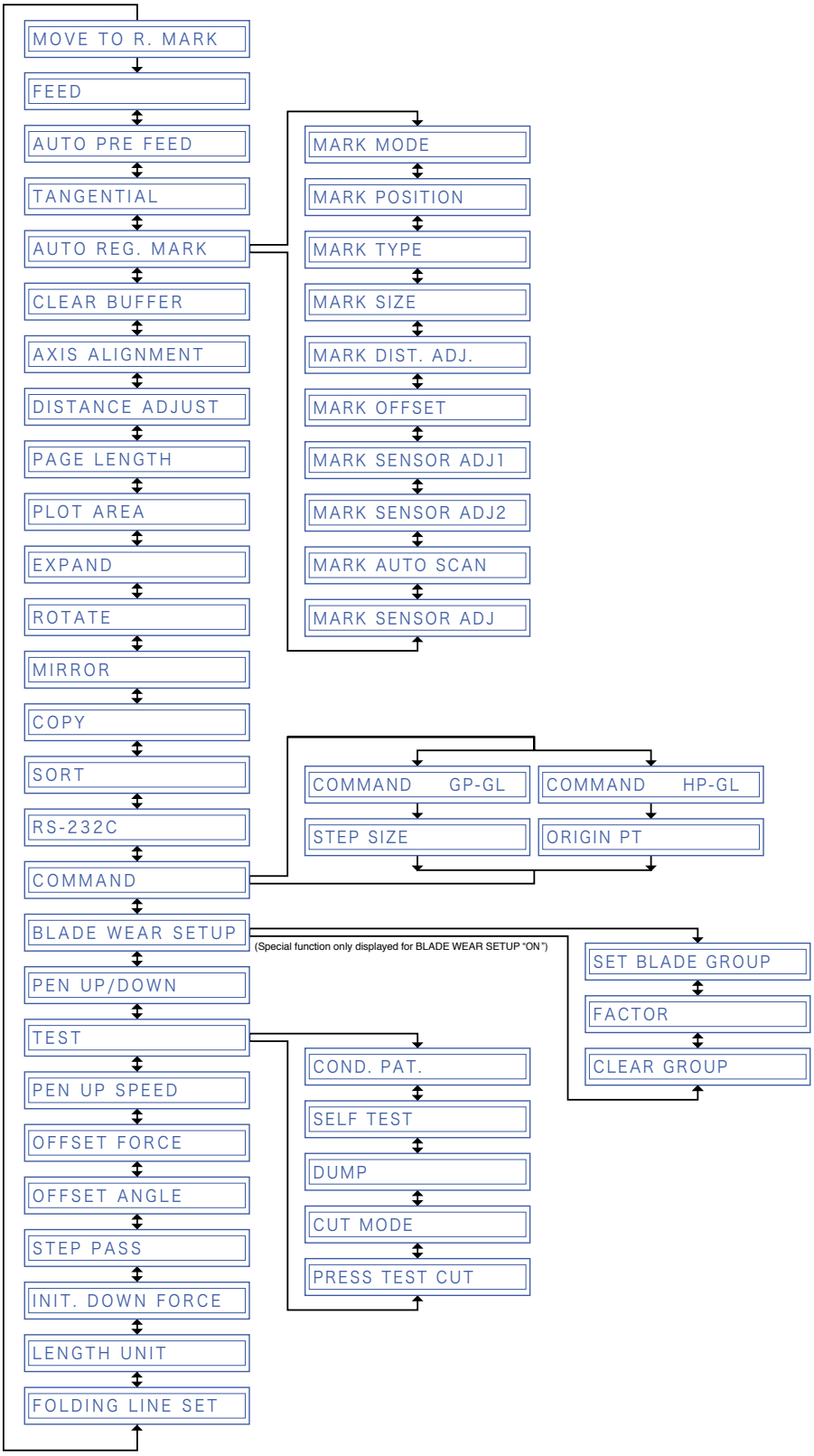
POSITION .These keys are used to move the cursor or change the settings on the LCD display on the function setting screens. Press these keys when in PAUSE status to move the pen carriage or the medium.

ORIGIN.....Press this function key to set the origin point. The pen position is set as the origin point when this key is pressed.

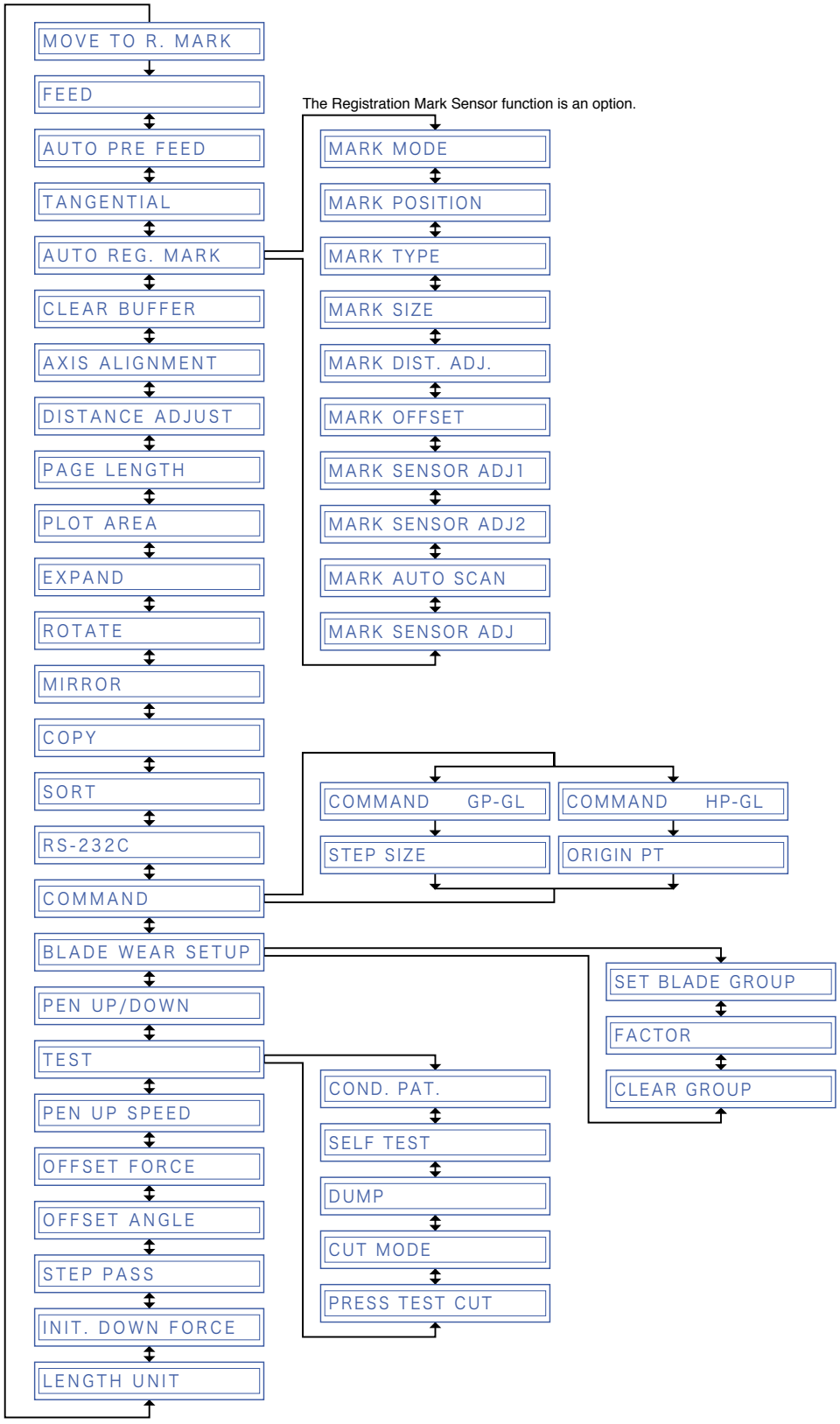
3.2 Menu List

Pressing the (PAUSE) key in READY mode displays the PAUSE menu, enabling the various settings to be made. Select the required menu by scrolling through the list using the (NEXT) and (PREV.) keys.

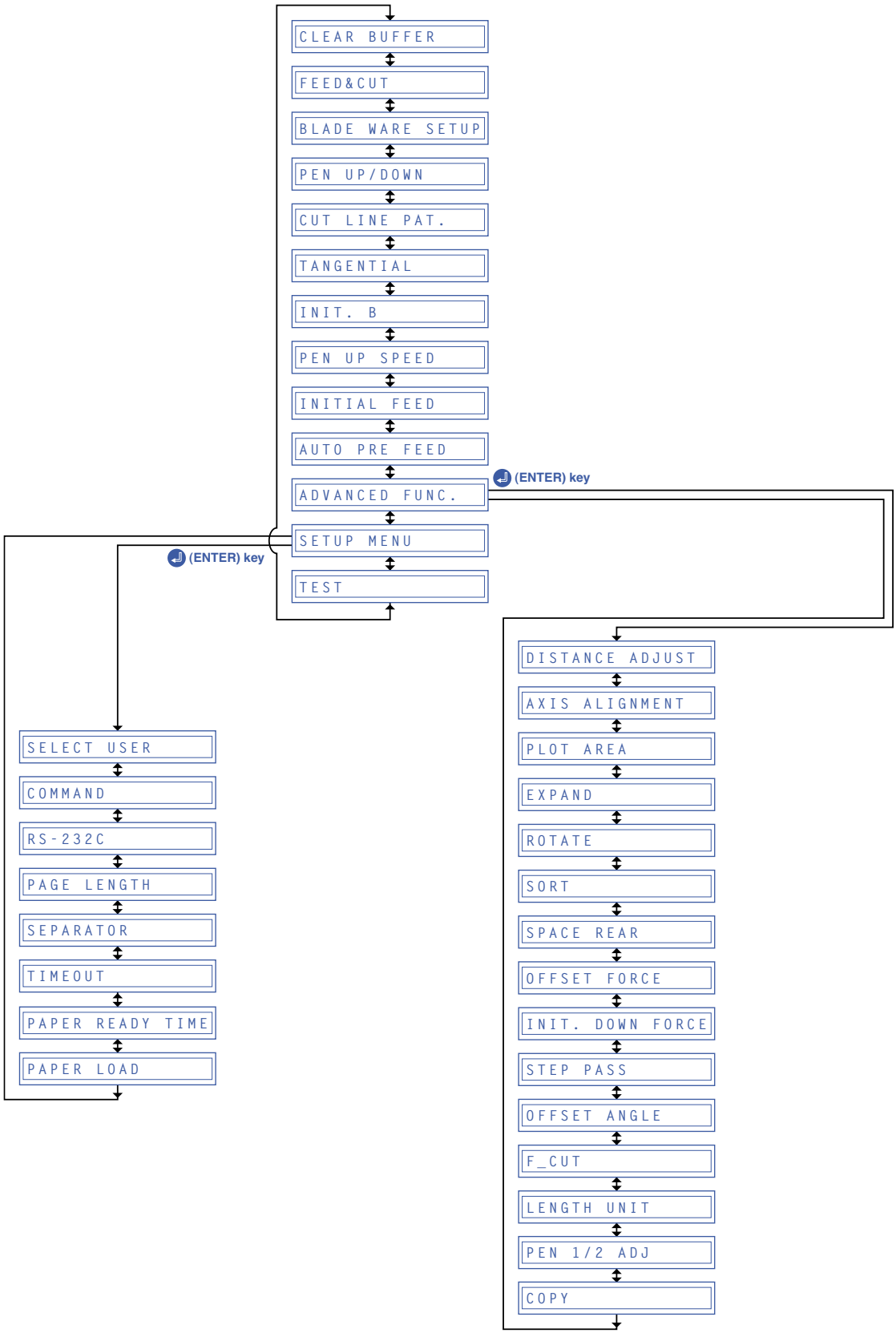
CE5000-40CRP



CE5000-60/120



CE5000-120AP



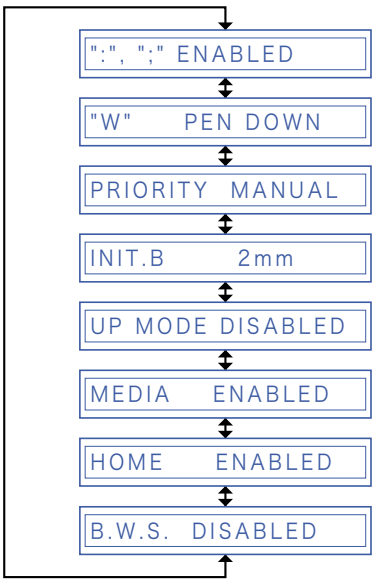
3.3 Description of Special Functions A

The cutting plotter is provided with the special functions described below. These functions are specified only in special situations, and are not normally used.

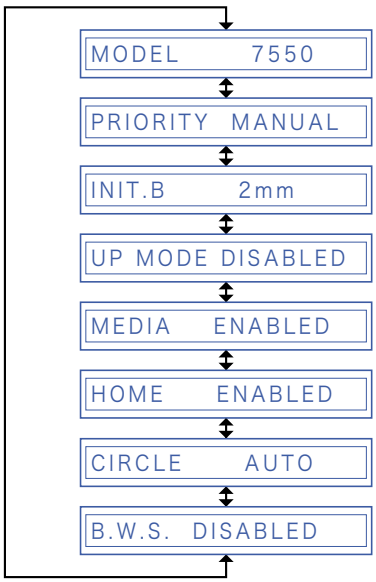
(1) Turn on the cutting plotter while holding down the ▽ key. The menus for setting the special functions are displayed.

CE5000-40/60/120

In GP-GL command mode

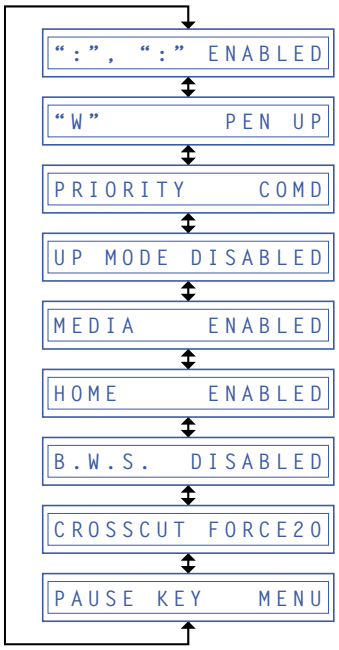


In HP-GL command mode

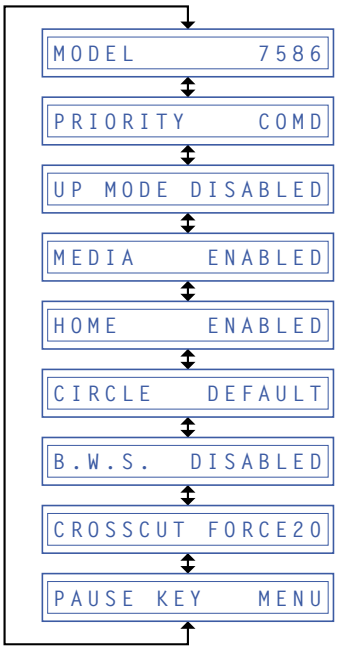


CE5000-120AP

In GP-GL command mode



In HP-GL command mode



(2) Scroll up or down to select the required menu using the (NEXT) or (PREV.) keys.

(3) Select the setting details using the △ and ▽ keys, and press the (ENTER) key to register the setting. To cancel, press the (NEXT) or (PREV.) key. The next menu is displayed.

(4) Once all the settings have been made, turn off the cutting plotter.

- **Enabling/Disabling the ":" and ";" Commands (when the COMMAND setting is GP-GL)**

  This function enables or disables the ":" and ";" commands when the COMMAND setting is GP-GL. If the first part of the data is lost, these commands may be having an adverse effect. In this case, set this function to DISABLED (the default setting is ENABLED).

- **Moving the Pen While Raised or Lowered in Response to the "W" Command (when the COMMAND setting is GP-GL)**

  This function selects whether, upon receipt of the "W" command for the drawing of arcs, the cutting plotter moves the pen to the specified starting position, raised or in the pen status (raised or lowered) that was in effect immediately prior to receipt of the "W" command.

  When PEN DOWN is selected, the pen is moved to the starting position for the drawing of arcs in the pen status (raised or lowered) that was in effect immediately prior to receipt of the "W" command.

  When PEN UP is selected, the pen is moved to the starting position for the drawing of arcs in the raised status. This setting is only effective if a cutter blade has been selected in the cutter-pen settings.

  (The default setting is PEN UP.)

- **Model ID Response (when the COMMAND setting is HP-GL)**

  This function sets the response to the "OI" command when the COMMAND setting is HP-GL.

  When 7550 is set, the "OI" command response is 7550.

  When 7586 is set, the "OI" command response is 7586.

  (The default setting is 7550.)

- **SETTING PRIORITY**

  This function sets whether the cutting plotter places priority on the cutting conditions specified through command input from the computer or through manual settings (on the cutting-plotter control panel).

  When MANUAL is selected, cutting is performed using the cutting conditions set at the control panel, and cutting conditions sent from the computer are ignored.

  When PROGRAM is selected, cutting is performed using the cutting conditions specified in a received cutting-condition command. If no commands are received, cutting is performed using the cutting conditions set at the control panel.

  (The default setting is MANUAL.)

- **Blade-Tip Initial Position Setting (Except CE3000-120AP)**

  The cutter blade is placed on the medium to orient it after the power is turned on or the cutter-pen conditions are set. This is referred to as "initializing" the cutter blade.

  This function sets the "Blade-Tip Initial Position" for this operation.

  When 2 mm BELOW is selected, initial blade control is performed at a position 2 mm below the cutting start position.

  When OUTSIDE is selected, initial blade control is performed outside of the effective cutting/plotting area.

  (The default setting is 2 mm BELOW.)

- **Enabling/Disabling PEN UP MOVE**

  This function sets whether the pen will travel to each point specified or only from the initially specified point to the last specified point when consecutive commands are received specifying pen movement while it is raised.

  When ON is selected, the pen travels consecutively to each coordinate specified by the data received.

  When OFF is selected, the pen travels directly from the initially specified point to the last specified point.

  (The default setting is OFF.)

- **Enabling/Disabling the Media Sensors**

  This function sets the media sensors that detect the size of the medium in the feed direction.

  When ON is selected, the feed-direction media sensors are enabled.

  When OFF is selected, the feed-direction media sensors are disabled.

  (The default setting is ON.)

- **Enabling/Disabling the Home Sensors**

  This function sets the home sensors that detect the width of the medium.

  When ON is selected, the home sensors are enabled.

  When OFF is selected, the home sensors are disabled.

  (The default setting is ON.)

- **Circle-Command Resolution Setting (when the COMMAND setting is HP-GL)**

  This function sets whether the resolution is automatically set or fixed at a constant 5 degrees when a cutting-plotter circle command is output while the COMMAND setting is HP-GL.

  (The default setting is Auto.)

- **Enabling/Disabling Blade Wear Detection**

  When ON is selected, the blade wear-detection setting is enabled and the blade wear-detection setting menu is displayed in the PAUSE menu.

  When OFF is selected, the blade wear-detection setting is disabled, and the blade wear-detection setting menu is removed from the PAUSE menu and is not displayed.

  (The default setting is OFF.)

- **Setting the Cross-Cut Force (CE5000-120AP only)**

  The cross-cut force can be set in the range “1” to “31”.

  (The default value is 20)

- **PAUSE Key Setting**

  Selects the screen to be displayed when you press the (PAUSE) key while cutting or plotting.

  If you serect “HOLD” the cutting plotter stops cutting or plotting and displays a jobselect screen prompting you to choose to continue or stop cutting/plotting.

  If you serect “MENU” the cutting plotter stops cutting or plotting and displays a pause menu screen.

  (The default setting is MENU)

3.4 Description of Special Functions B

These functions are specified only in the special situations described below, and are not normally used.

- **Display Language Setting (MENU LANGUAGE SELECTION)**

  This function sets the language used on the display. One of six languages can be selected: English, French, German, Italian, Spanish, or Japanese.

(1) Turn the cutting plotter on while holding down the (ENTER) and (ORIGIN) keys simultaneously. The special functions B setting menu is displayed.

```
DISPLAY  ENGLISH
```

(2) Use the △ and ▽ keys to select the desired display language, and then press the (ENTER) key to confirm. To cancel, press the (NEXT) or (PREV.) key.

(3) Once all the settings have been made, turn off the cutting plotter.

4. RECOMMENDED PARTS LIST

No.	Part No.	Description	-40	-60	-120	-120AP	Remarks
1	095002122	Push Roller	2	2	3	3	
2	621360021	Cutting Mat 40	1	–	–	–	
	621350041	Cutting Mat 60	–	1	–	–	
	621351051	Cutting Mat 120	–	–	1	–	
	621250520	Cutting Mat 120AP	–	–	–	1	
3	095013010	Roller BB13	7	7	7	7	
4	621233201	Y Belt 40	1	–	–	–	
	621113022	Y Belt 60	–	1	–	–	
	621153202	Y Belt 120	–	–	1	1	
5	791230710	Y Drive Pulley	1	1	1	1	
6	792130700	Main Board CE5000-60/120	–	1	1	–	CE5000-60/120
	792130713	Main Board CE5000-40CRP	1	–	–	–	CE5000-40CRP
	792130715	Main Board CE5000-120AP	–	–	–	1	CE5000-120AP
7	682900551	Fan, KLDC24Z4-913A	1	1	2	2	
8	692132330	Y Flexible Cable 40/60	1	1	–	–	FPC504303
	692132340	Y Flexible Cable 120/120AP	–	–	1	1	FPC504304
9	682132200	Power Supply	1	1	1	1	SNP-Y119
10	692132350	Cam Sensor Flexible Cable	1	1	1	1	FPC504305
11	692132360	Push Roller Sensor Flexible Cable	1	1	1	1	FPC504306
12	692132320	Control Panel Flexible Cable	1	1	1	1	FPC504302
13	561080004	Paper Sensor	2	2	2	2	PS117ED1
14	792130704	X Motor for CE5000-40/60	1	1	–	–	DMN37JE-001
	792130705	X Motor for CE5000-120	–	–	1	1	UGFMED-B5LGRA5
15	792130704	Y Motor for CE5000-40/60/120	1	1	1	1	DMN37JE-001
16	792130702	Pen Block Assy for CE5000-40/60	1	1	–	–	
	792130703	Pen Block Assy for CE5000-120	–	–	1	–	
	792130716	Pen Block Assy for CE5000-120AP	–	–	–	1	
17	792130707	Y Relay Board	1	1	1	1	PN5043-05
18	792130706	Control Panel Relay Board	1	1	1	1	PN5043-04
19	792130708	Push Roller Sensor Board	1	1	1	1	PN5043-06
20	792130709	Cam Sensor Board	1	1	1	1	PR5043-07
21	792130710	Auto Registration Mark Sensor Board	1	1	1	–	PN5043-09
22	682132080	Control Panel Membrane Switch Panel	1	1	1	1	PN5043-08
23	562060004	LCD	1	1	1	1	RCM-2122R-B
24	792130711	X Motor Relay Board	–	–	1	1	PN5043-11
25	792130712	Fan Relay Board	–	–	1	1	PN5043-12
26	621232202	Drive Roller 120	–	–	1	1	CE5000-120/AP
	621232000	Drive Roller 60	–	1	–	–	CE5000-60
	621232100	Drive Roller 40	1	–	–	–	CE5000-40
27	314690020	Drive Roller Bearing, 6900ZZNXR	2	2	2	2	

5. LIST OF TOOLS

5.1 Tools

No.	Adjustment Item	Jig	Tool
1	Pen force adjustment	Cutter pen holder (CB09)	Colex gauge (50,300,500 gf)
2	Distance adjustment		Glass scale
3	Pen block height adjustment	10 mm height block	
4	Firmware update		PC, USB I/F cable
5	X-drive belt tension adjustment		Push-pull gauge (2 kg)
6	Y-drive belt tension adjustment		Push-pull gauge (2 kg)
7	Replacing the main board		Short screwdriver (50 mm)
8	Replacing the vacuum fan		

5.2 Greasing And Gluing Points

No.	Grease or Glue Point	Grease or Glue name	Application quantity
1	Cam	Shinetu silicon grease G501	Suitable quantity
2	X-drive motor pulley	Shinetu silicon grease G501	Suitable quantity
3	Y-drive motor pulley	Shinetu silicon grease G501	Suitable quantity
4	X-drive pulley	Shinetu silicon grease G501	Suitable quantity
5	Y-drive pulley	Shinetu silicon grease G501	Suitable quantity
6	Y-tension pulley	Shinetu silicon grease G501	Suitable quantity
7	Y-rail, push roller assy sliding area	Shinetu silicon grease G501	Suitable quantity
8	Y-motor drive pulley set screws	Loctite 222	Small quantity
9	X-motor drive pulley set screws	Loctite 222	Small quantity
10	X-drive pulley set screws	Loctite 222	Small quantity

5.3 Subparts List

No.	Where used	Subpart name	Size
1	Front guide 120	Measuring tape	250 mm x 2
2	Rear paper sensor	Outdoor use cutting sheet, black	7 x 15 mm, thickness 0.08 to 0.1 mm
3	Y-relay board core	Double-sided adhesive tape	10 x 20 mm
4	Y-rail	Double-sided adhesive tape	10 x 15, 10 x 50 mm
5	Y-relay board	Harness tiewrap	About 100 x 2.5 mm, t=1.0 mm
6	Vacuum fan wiring harness	Harness tiewrap	About 100 x 2.5 mm, t=1.0 mm
7	Y-motor	Bush	5 x 3 mm
8	Tension pulley	Bush	4 x 3 mm
9	Drive roller bearing	Bush	3 x 4.5 mm
10	Cam sensor bracket	Bush	4 x 2, 4 x 12 mm
11	Cam sensor bracket	Washer	4 mm

6. DISASSEMBLY AND REASSEMBLY

6.1 Exterior Parts

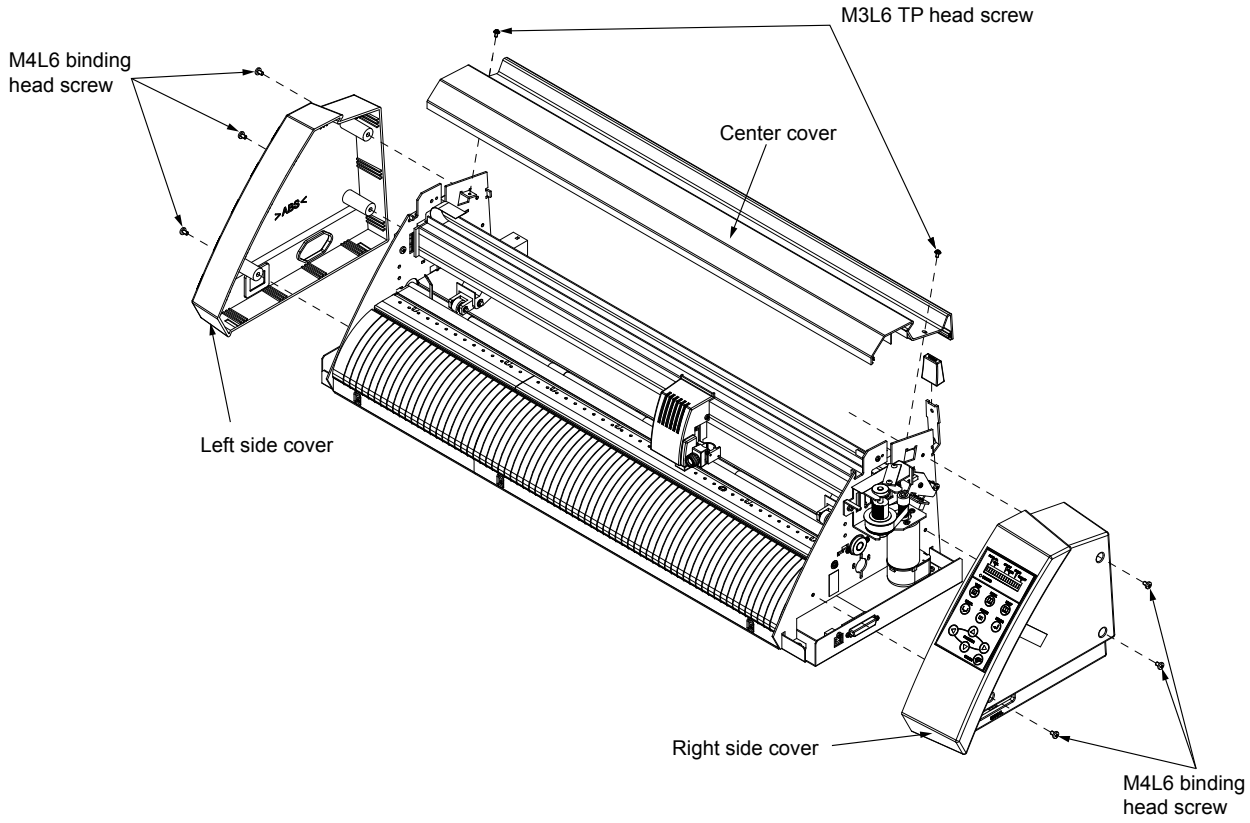
6.1.1 How to Replace the Right Side Cover

How to detach the right side cover

(1) Remove the three M4L6 binding head screws from the right side cover.

Note: Hold the right side cover after you have detached the screws; there is a flexible cable inside the cover.

(2) Disconnect the flexible cable which is connected to the control panel relay board.



How to reinstall the right side cover

(1) Connect the flexible cable to the control panel relay board, and mount the right side cover.

(2) Fasten the three M4L6 binding head screws.

6.1.2 How to Replace the Left Side Cover

How to detach the left side cover

(1) Remove the three M4L6 binding head screws from the left side cover.

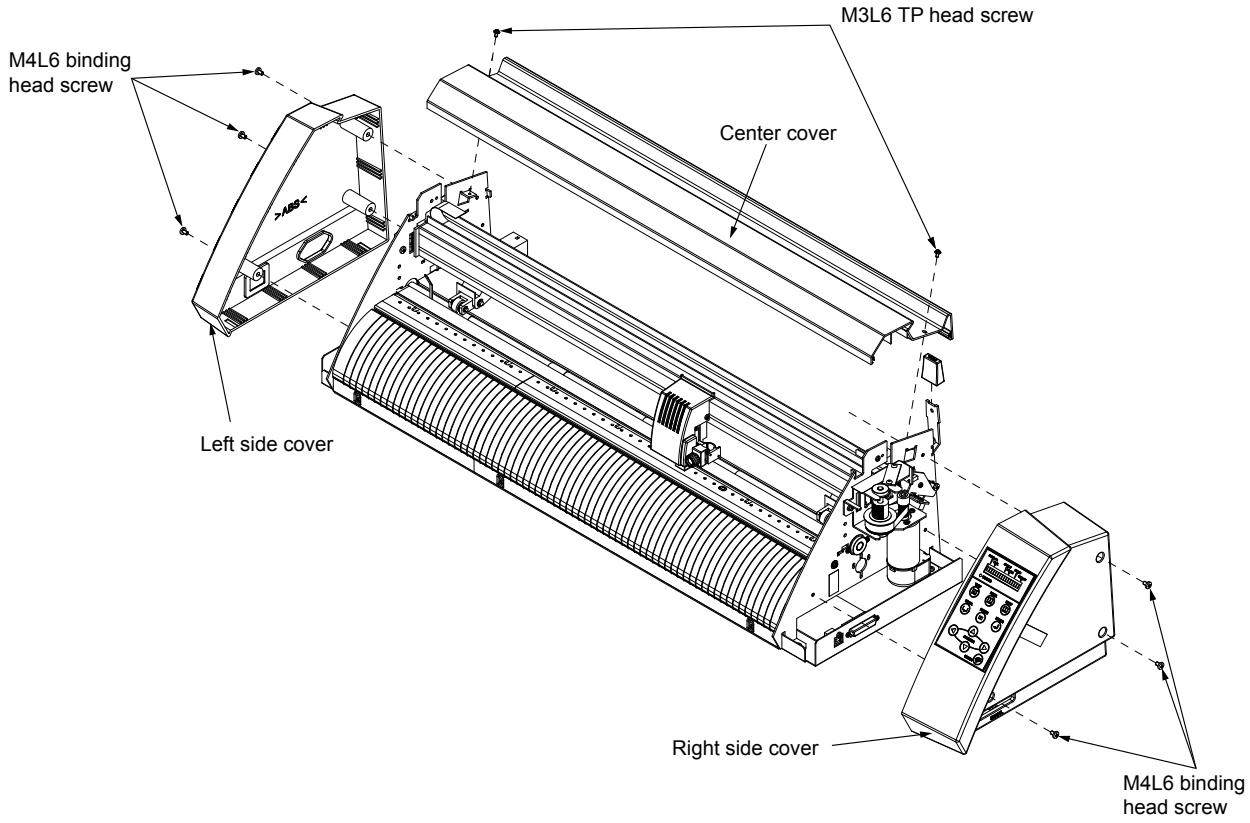
How to reinstall the left side cover

(1) Fasten the three M4L6 binding head screws.

6.1.3 How to Replace the Center Cover (CE5000-40/60)

How to detach the center cover

(1) Remove the two M3L6 TP head screws from the center cover.



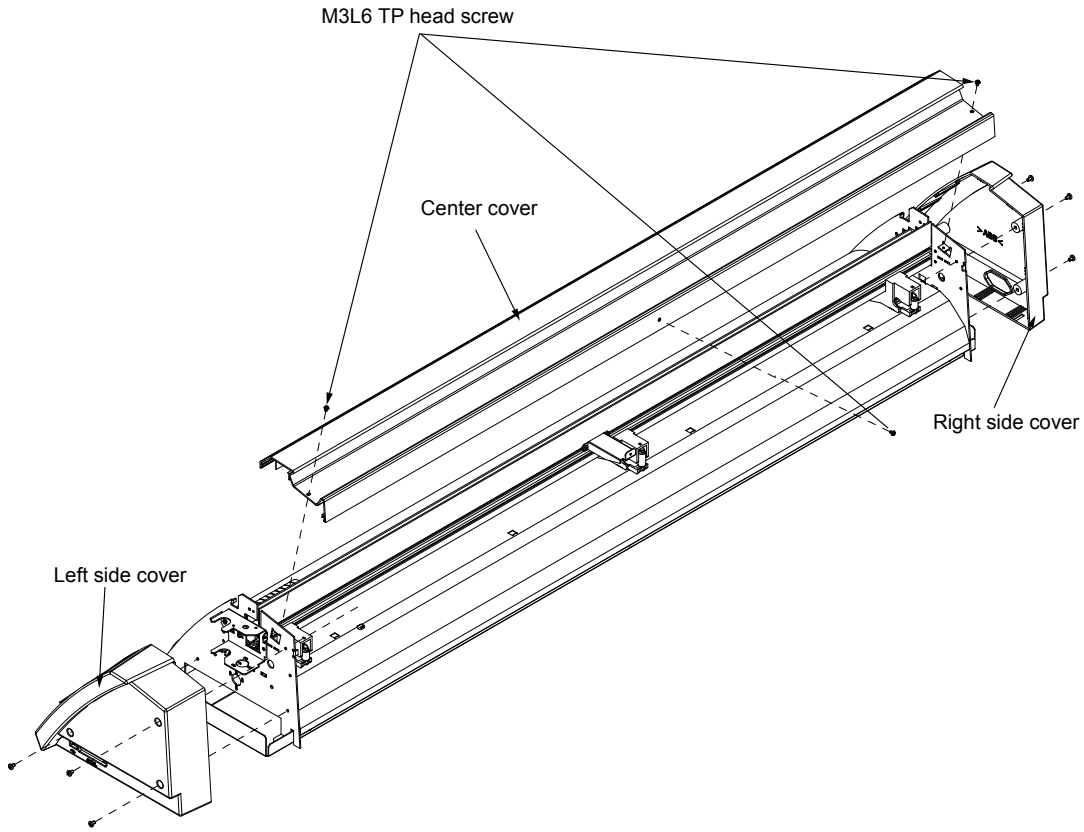
How to reinstall the center cover

(1) Mount the center cover and fasten the two M3L6 TP head screws.

6.1.4 How to Replace the Center Cover (CE5000-120/120AP)

How to detach the center cover

(1) Remove the three M3L6 TP head screws from the center cover.



How to reinstall the center cover

(1) Mount the center cover and fasten the three M3L6 TP head screws.

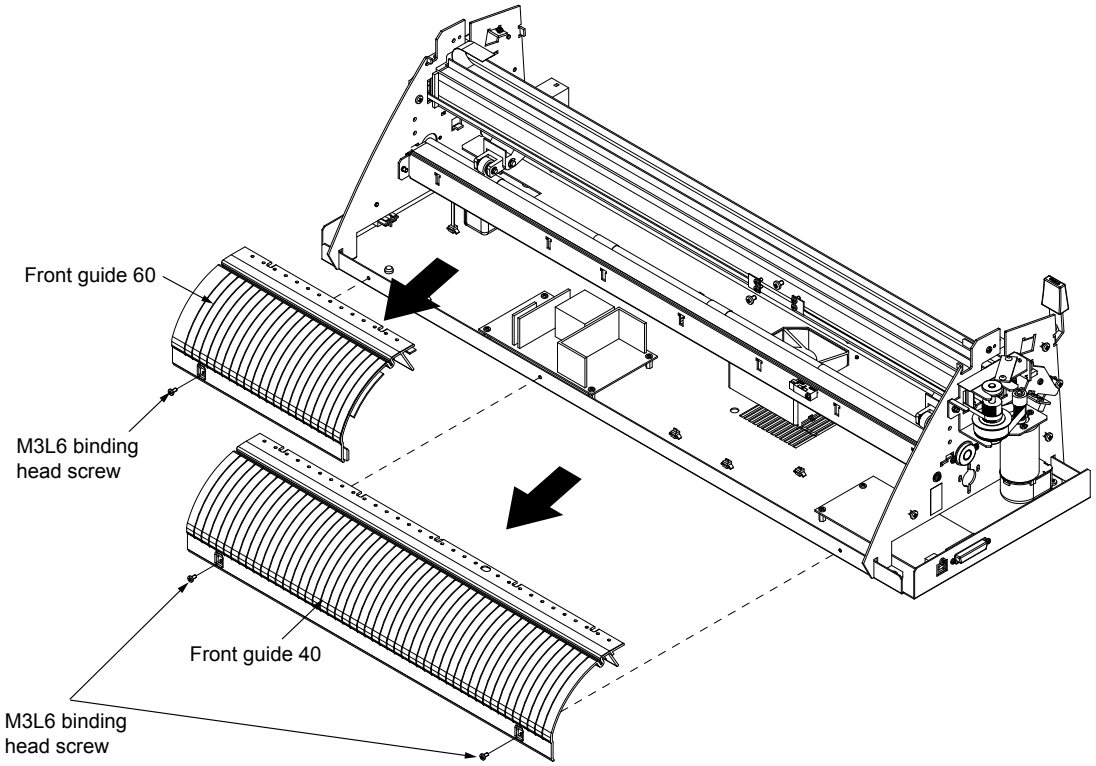
6.1.5 How to Replace the Front Guide (CE5000-40/60)

How to detach the front guide (CE5000-60)

(1) Remove the two M3L6 binding head screws from front guide 40.

(2) Remove the M3L6 binding head screw from front guide 60.

(3) Pull out the front guides to the front.



How to detach the front guide (CE5000-40)

(1) Remove the two M3L6 binding head screws from front guide 40.

(2) Pull out the front guide to the front.

How to reinstall the front guide (CE5000-60)

(1) Install front guide 60 and fasten the one M3L6 binding head screw.

(2) Install front guide 40 and fasten the two M3L6 binding head screws.

How to reinstall the front guide (CE5000-40)

(1) Install front guide 40 and fasten the two M3L6 binding head screws.

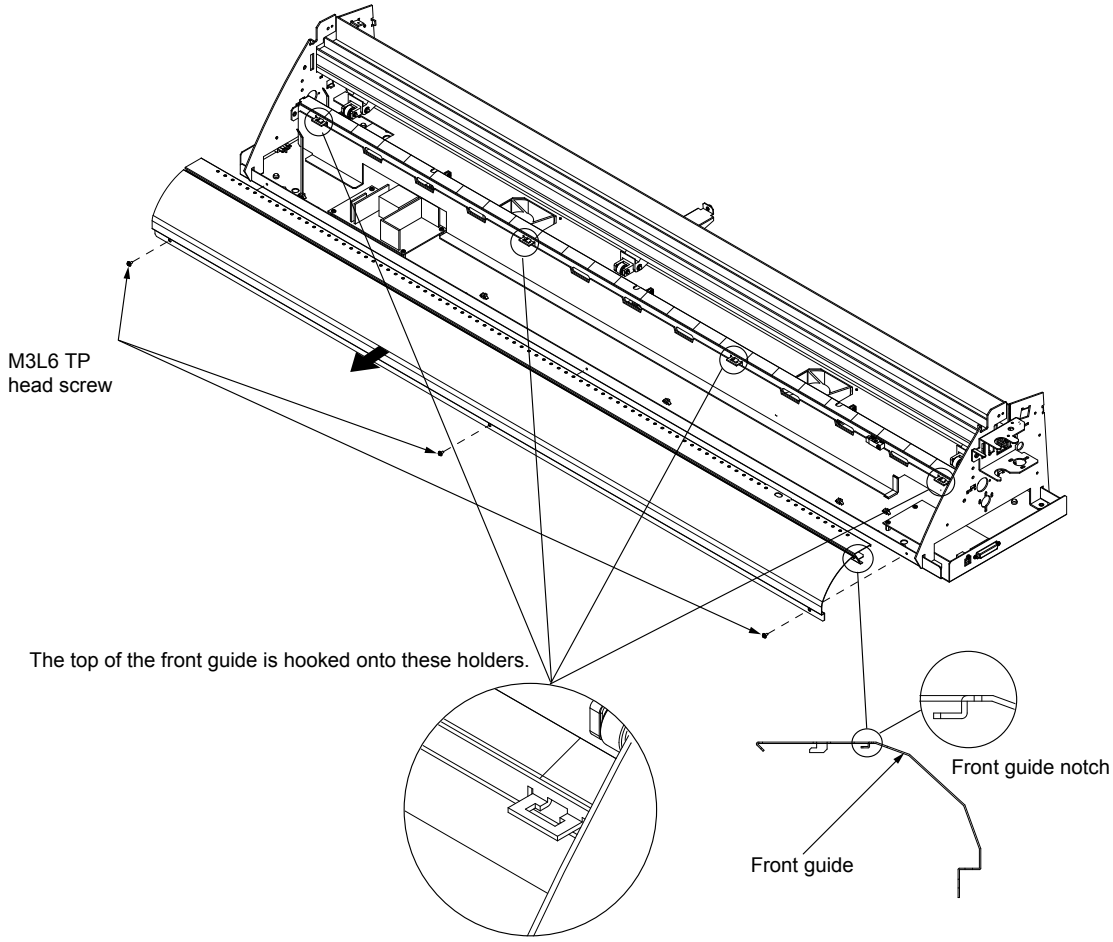
6.1.6 How to Replace the Front Guide (CE5000-120/120AP)

There are two measuring tapes on the front guide of the CE5000-120. You have to attach new tapes after replacing the front guide.

How to detach the front guide (CE5000-120/120AP)

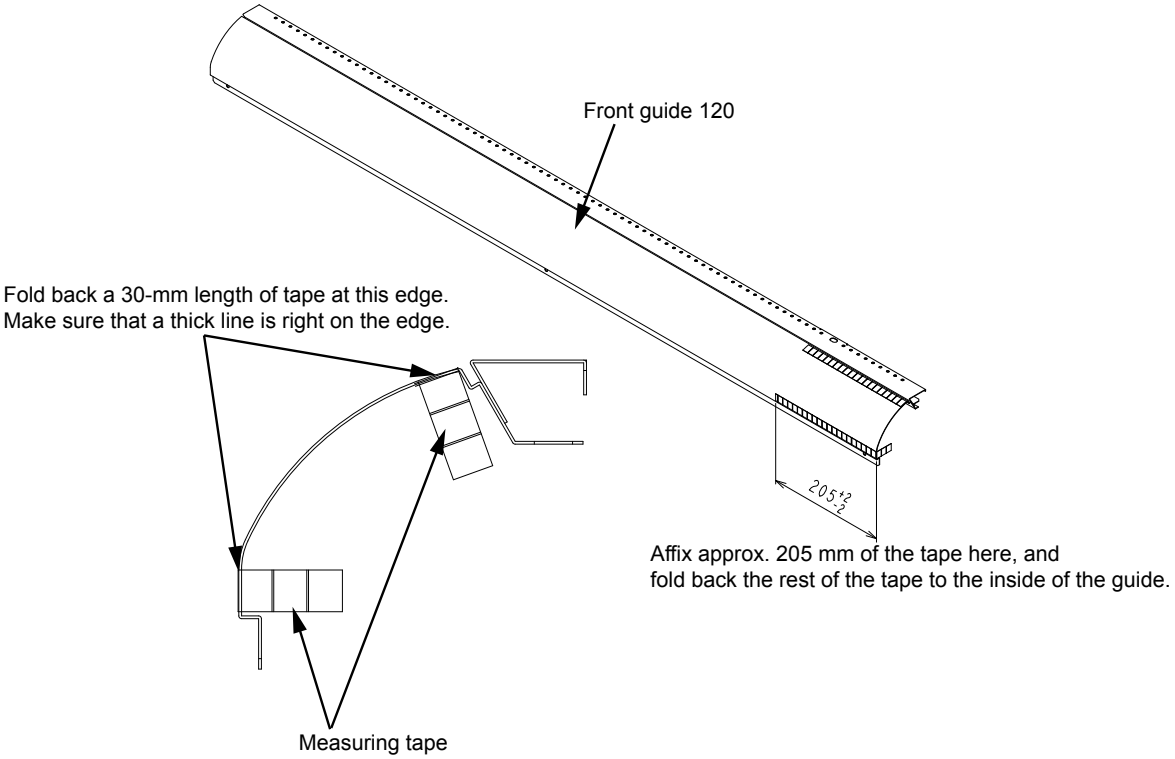
(1) Remove the three M3L6 TP head screws from front guide 120.

(2) Pull out the front guide to the front.



How to reinstall the front guide (CE5000-120)

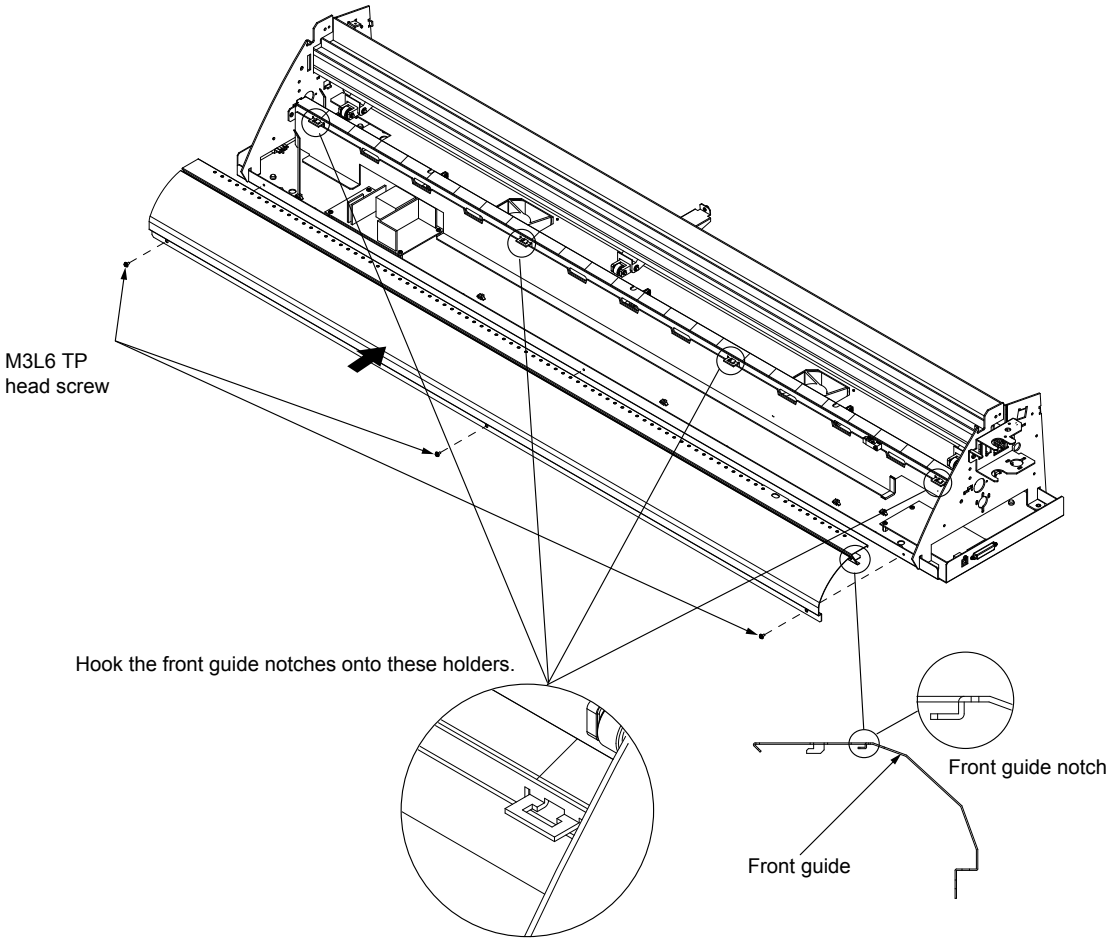
(1) Have ready two 250 mm-long measuring tapes when you replace the front guide.


Front guide 120
Fold back a 30-mm length of tape at this edge.
Make sure that a thick line is right on the edge.
205±2
Affix approx. 205 mm of the tape here, and
fold back the rest of the tape to the inside of the guide.
Measuring tape

(2) Clean the surface of the front guide 120 with alcohol at the locations where the measuring tapes will be affixed.

(3) Affix the measuring tapes as shown in the above figure.

(4) Install the front guide as shown below.



(5) Slide in front guide 120 and hook the notches onto the main frame as shown in the above figure.

(6) Fasten the three M3L6 TP head screws.

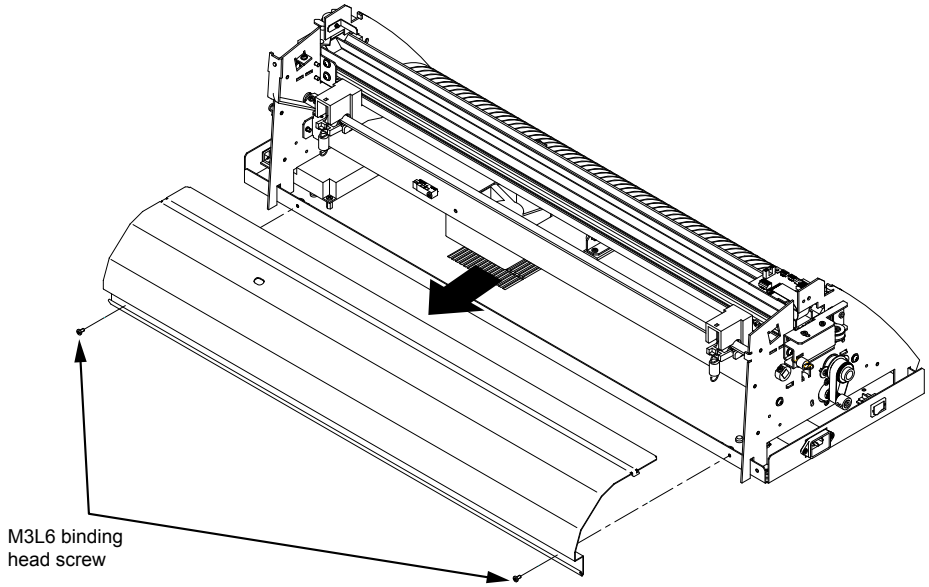
6.1.7 How to Replace the Rear Guide

How to detach the rear guide

(1) Remove the two M3L6 binding head screws from the rear guide.
(Remove the three M3L6 binding head screws from the rear guide for the CE5000-120/120AP.)

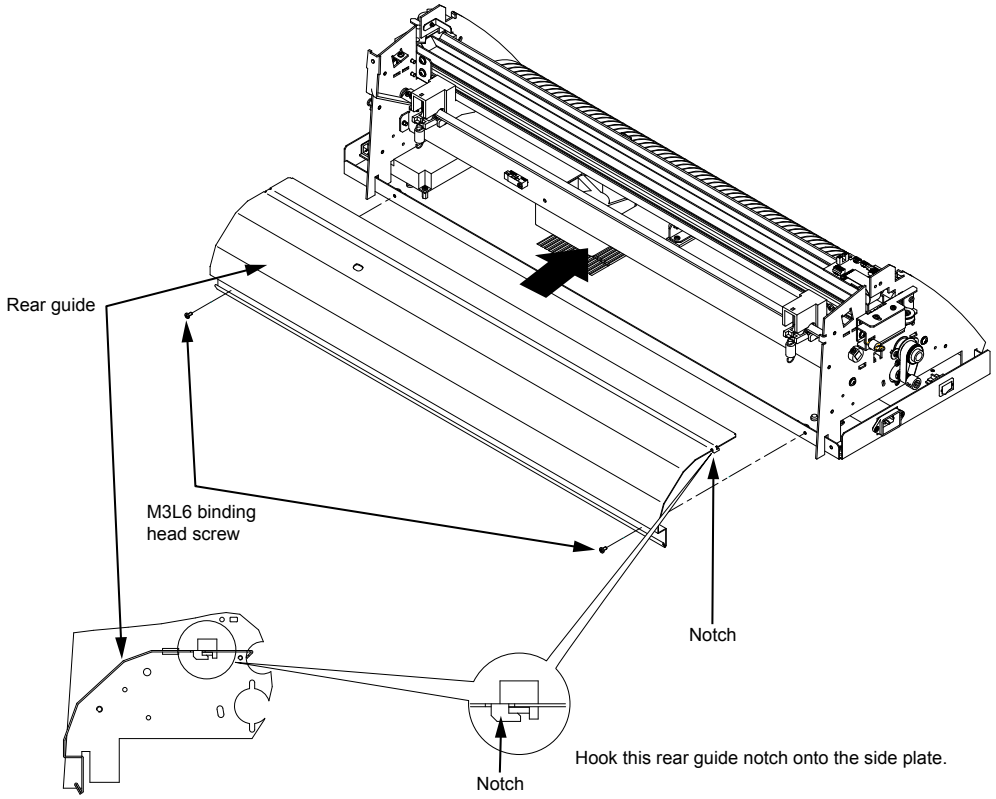
(2) Set the cam lever to the media hold position.

(3) Pull out the rear guide to the rear.



How to install the rear guide

(1) Slide in the rear guide and hook the notches to the left and right side plates as shown in the figure below.
(The CE5000-120/120AP has six notches; two notches for the left and right side plates, and four notches for the center chassis.)



(2) Fasten the two M3L6 binding head screws.
(Fasten the three M3L6 binding head screws for the CE5000-120/120AP.)

6.2 Mechanical Parts

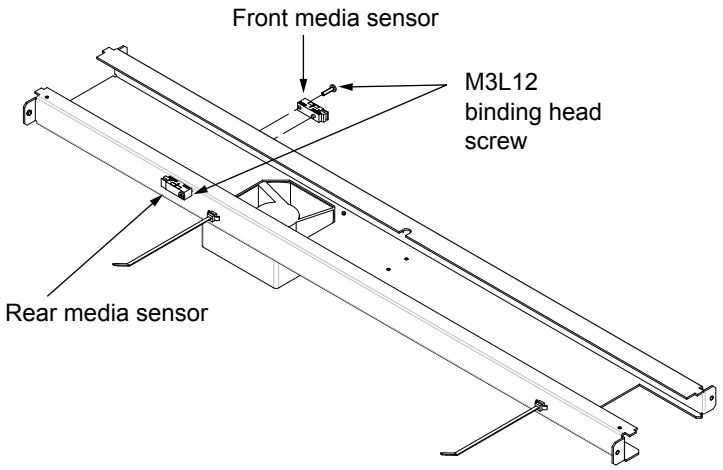
6.2.1 How to Replace the Front and Rear Media Sensors

How to detach the front or rear media sensor

(1) Detach the front or rear guide (Front guide: see Subsection 6.1.5 for CE5000-40 and 60, and Subsection 6.1.6 for CE5000-120/120AP; Rear guide: see Subsection 6.1.7).

(2) Remove the M3L12 binding head screw attaching the sensor.

(3) Disconnect the sensor from the connector.



How to reinstall the front media sensor

(1) Connect the sensor to the connector.

(2) Fasten the M3L12 binding head screw to mount the sensor.

(3) Install the front guide.

How to reinstall the rear media sensor

(1) Connect the sensor to the connector.

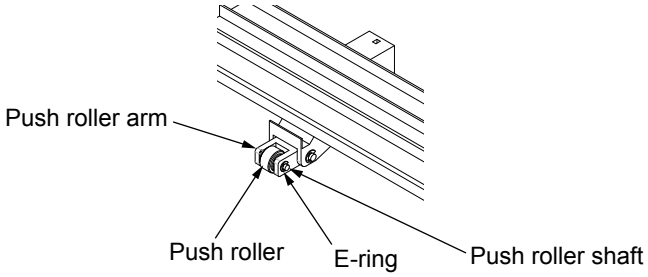
(2) Fasten the M3L12 binding head screw to mount the sensor.

(3) Install the rear guide.

6.2.2 How to Replace the Push Roller

How to detach the push roller

(1) Detach the right side of the E-ring from the push roller shaft.



(2) Detach the push roller shaft from the push roller arm from the left side.

(3) Detach the push roller.

How to reinstall the push roller

(1) Reattach the push roller in the reverse order in which it was detached.

6.2.3 How to Replace the Push Roller Arm

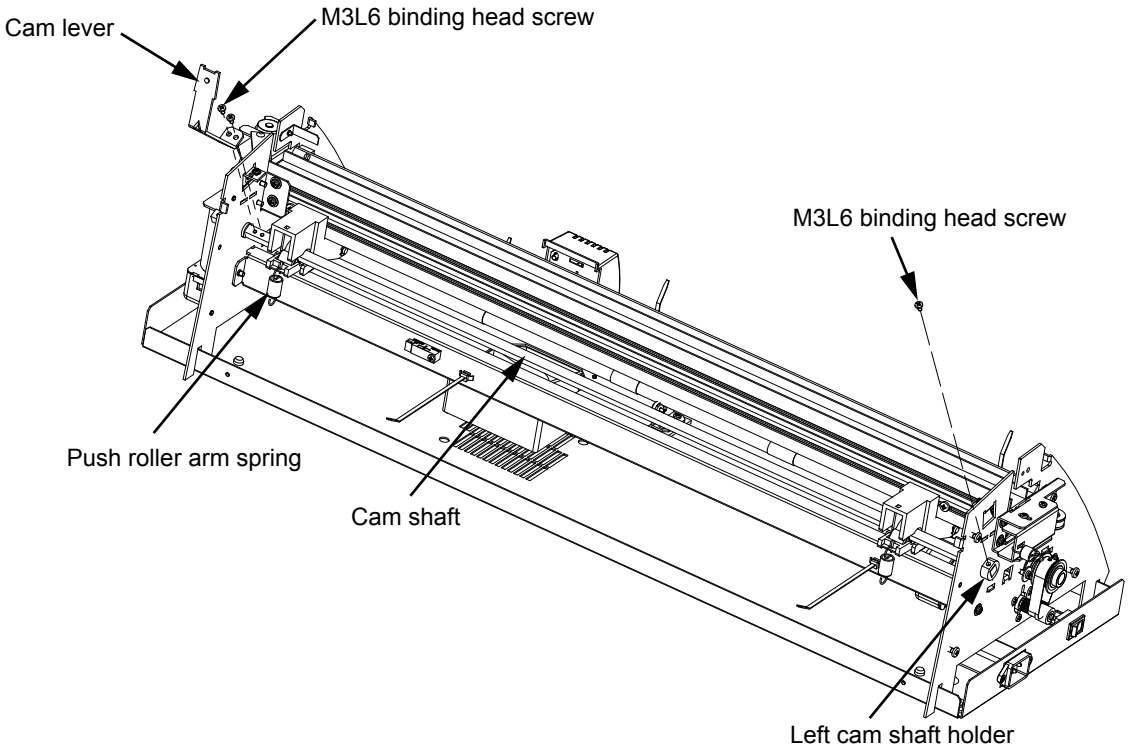
How to detach the push roller arm

(1) Detach the right and left side covers (see Subsection 6.1.1 and Subsection 6.1.2).

(2) Detach the center cover (see Subsection 6.1.3 or 6.1.4).

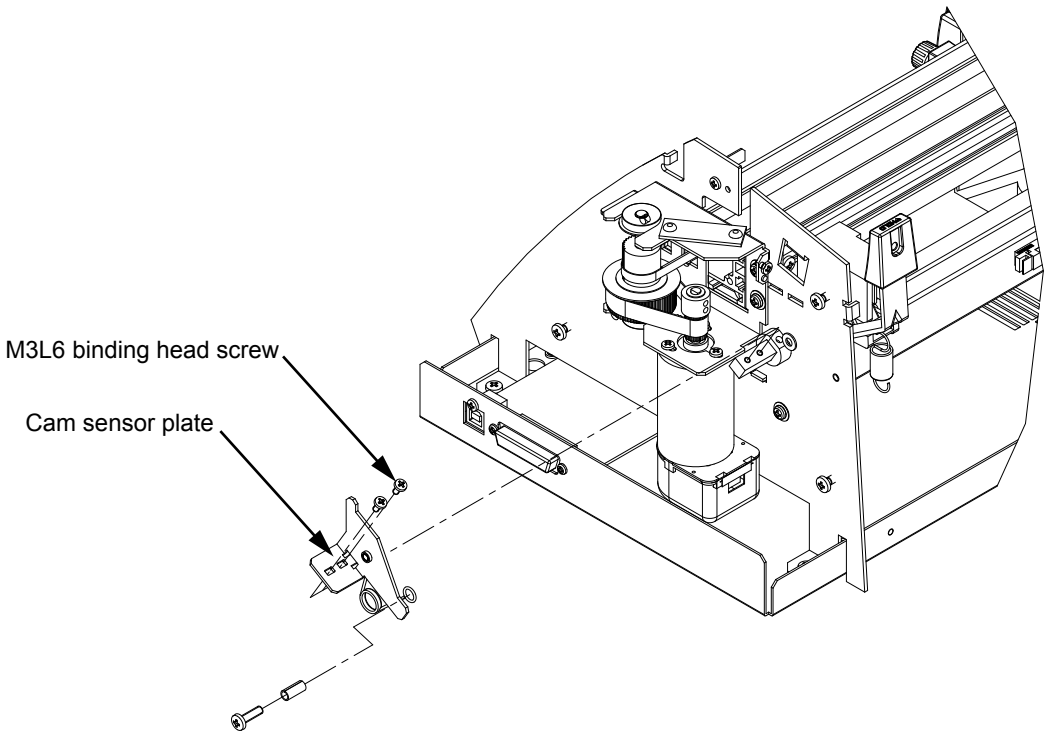
(3) Set the cam lever to the media release position.

(4) Remove the two M3L6 binding head screws attaching the cam lever.

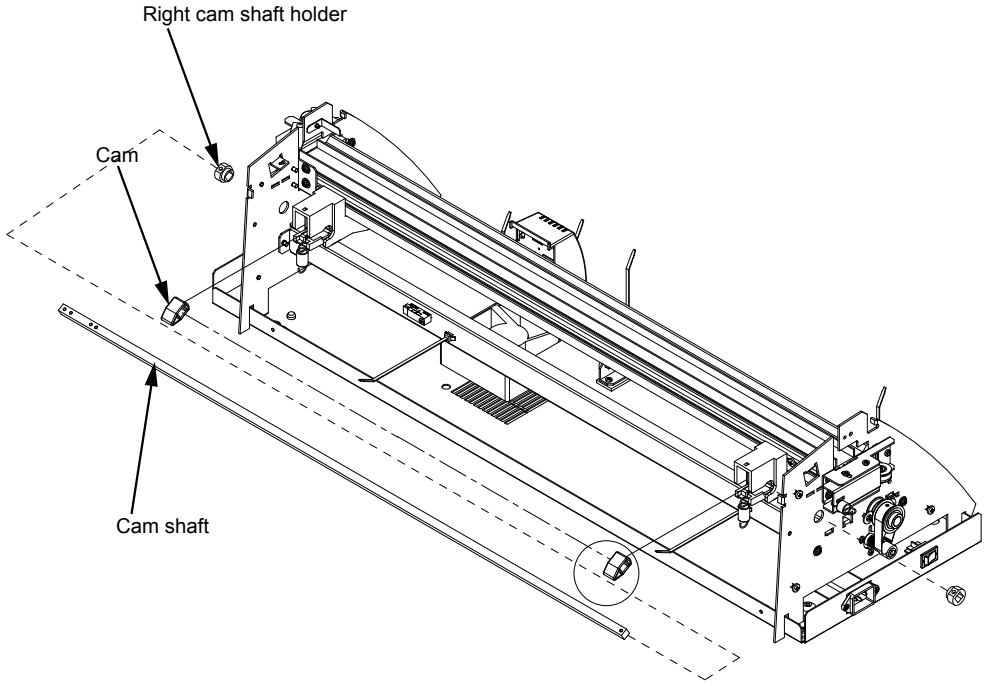


(5) Remove the M3L6 binding head screw attaching the left side cam shaft holder.

(6) Remove the two M3L6 binding head screws attaching the cam sensor plate to the cam shaft.



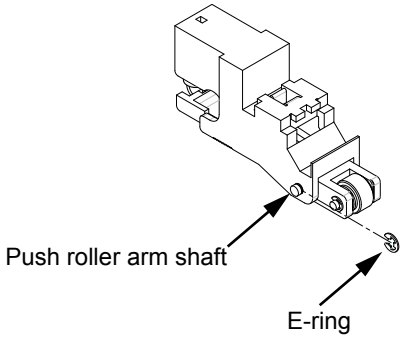
(7) Detach the right side cam shaft holder.



(8) Pull out the cam shaft from the right side.

(9) Detach the push roller arm spring from the push roller arm.

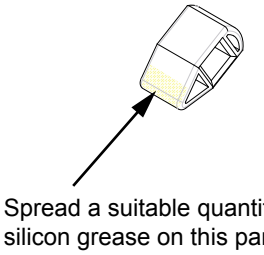
(10) Detach the E-ring from the push roller arm shaft.



(11) Detach the push roller arm shaft from the push roller arm and detach the push roller arm, push roller arm base, and the cam.

How to reinstall the push roller arm

(1) Spread a suitable quantity of the Shinetu silicon grease G501 on the cam as shown below.



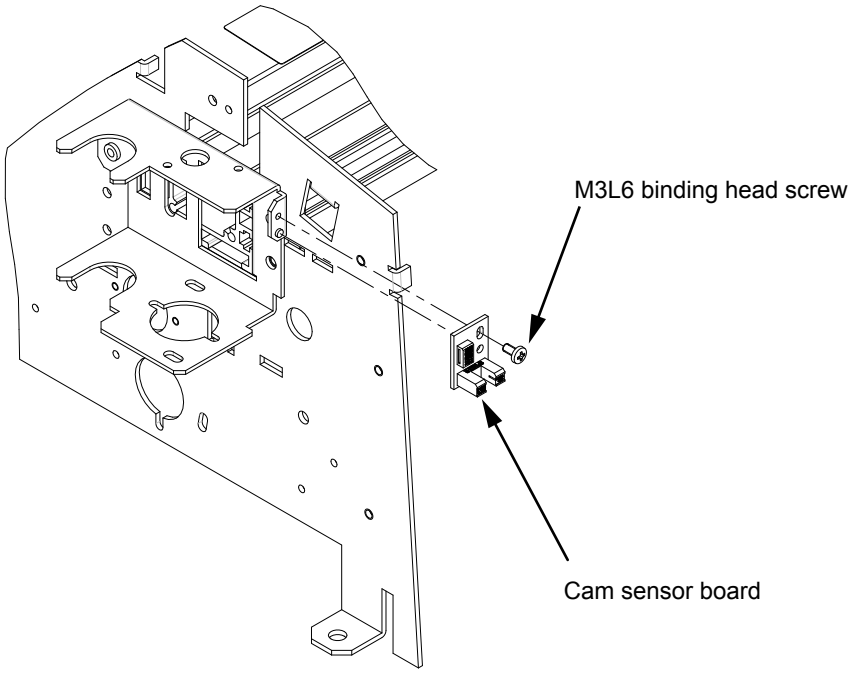
(2) Reattach the push roller arm in the reverse order in which it was detached.

6.2.4 How to Replace the Cam Sensor Board

How to detach the cam sensor board

(1) Detach the right side cover (see Subsection 6.1.1).

(2) Disconnect the flexible cable from connector J701 on the cam sensor board.



(3) Remove the M3L6 binding head screw attaching the cam sensor board.

How to reinstall the cam sensor board

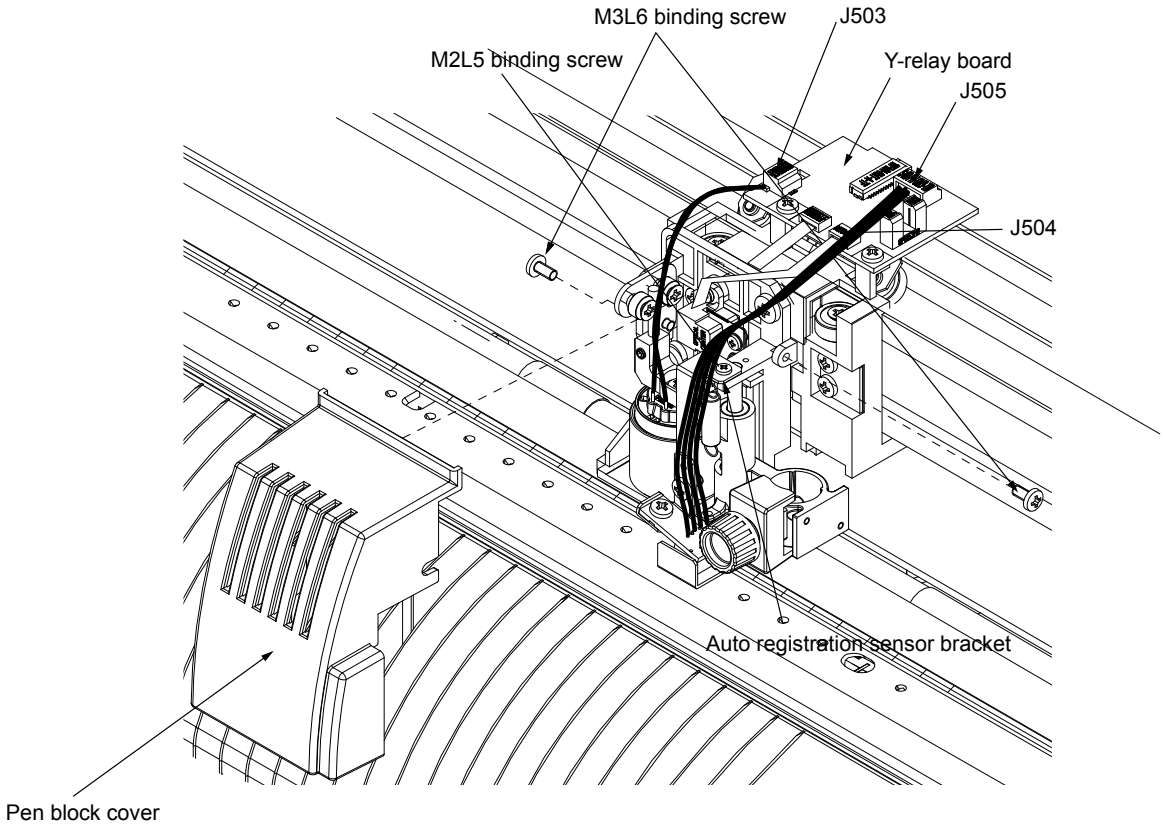
(1) Reattach the cam sensor board in the reverse order in which it was detached.

6.2.5 How to Replace the Pen Block

How to detach the pen block

(1) Detach the center cover (see Subsection 6.1.3 or 6.1.4).

(2) Loosen the M3L6 binding head screw attaching the pen block cover.

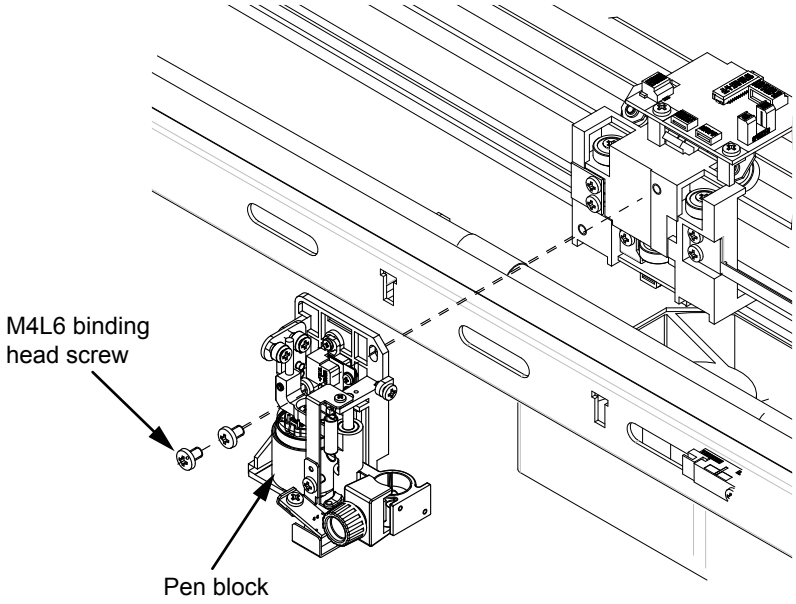


(3) Remove the pen block cover.

(4) Disconnect the cables from connector J503 and J505 (Except CE5000-120AP) on the Y-relay board. (Also disconnect the flexible cable from connector J504 when you are replacing the pen block on the CE5000-120)

(5) Remove the two M2L5 binding head screws attaching the auto registration mark sensor bracket. Then remove the auto registration mark sensor. (Except CE5000-120AP)

(6) Remove the two M4L6 binding head screws attaching the pen block.

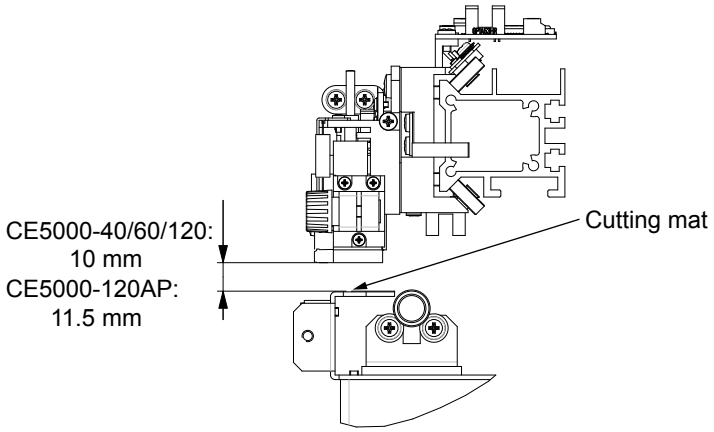


How to reinstall the pen block

(1) Attach the pen block to the Y-slider.

(2) Fasten the two M4L6 binding head screws to attach the pen block so that there is a gap of 10 mm (CE5000-120AP: 11.5 mm) between the bottom of the pen block and the cutting mat. Perform a visual check to make sure that the pen block is not mounted at an angle.

Side view of the pen block



(3) Reattach the other parts in the reverse order in which they were detached.

(4) Perform the pen force adjustment (see Section 7.5).

(5) Perform the auto registration mark sensor offset adjustment for the CE5000-40/60/120 (see Section 7.9).

6.2.6 How to Replace the Push Roller Sensor

How to detach the push roller sensor

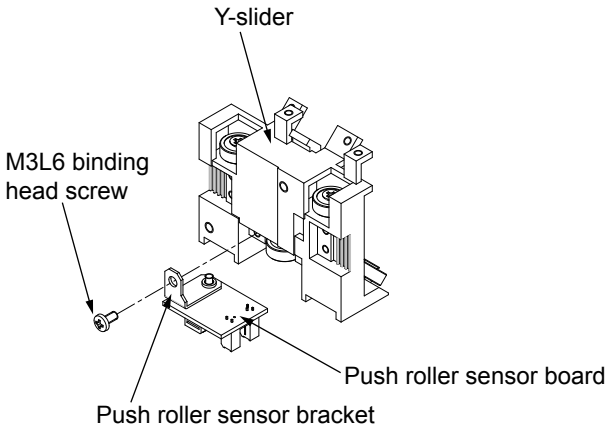
(1) Detach the center cover (see Subsection 6.1.3 or 6.1.4).

(2) Detach the pen block (see Subsection 6.2.5).

(3) Disconnect the push roller sensor flexible cable from the Y-relay board.

(4) Remove the push roller sensor flexible cable that is attached with double-sided adhesive tape to the Y-slider.

(5) Remove the M3L6 binding head screw attaching the push roller sensor bracket to the slider.



(6) Remove the M3L6 binding head screw attaching the push roller sensor board.

(7) Disconnect the push roller sensor flexible cable from the push roller sensor board.

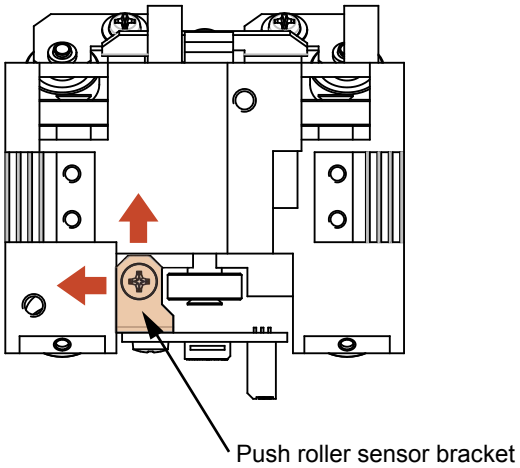
How to reinstall the push roller sensor

(1) Attach the push roller sensor bracket to the push roller sensor board.

(2) Connect the push roller sensor flexible cable to the push roller sensor board.

(3) Attach the push roller sensor bracket to the Y-slider.

Fit the top and left edges of the push roller sensor bracket to the Y-slider as shown in the figure below.



(4) Attach the pen block (see Subsection 6.2.5).

(5) Reattach the other parts in the reverse order in which they were detached.

6.2.7 How to Replace the Y-relay Board

How to detach the Y-relay board

(1) Detach the center cover (see Subsection 6.1.3 or 6.1.4).

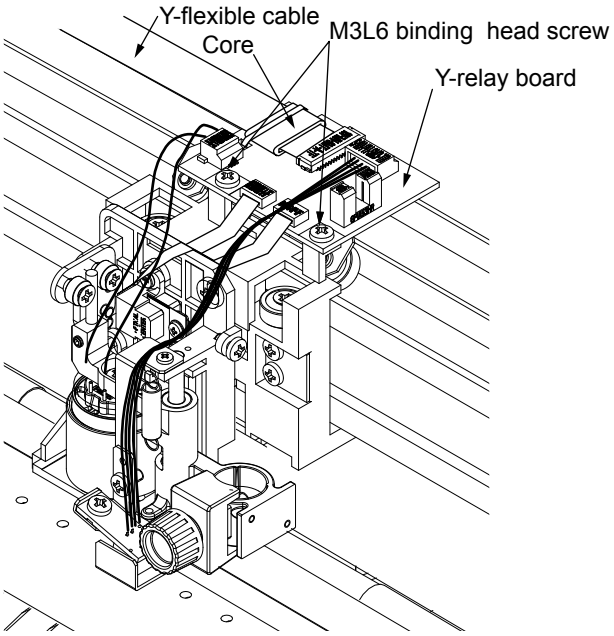
(2) Detach the pen block cover (see Subsection 6.2.5).

(3) Disconnect all the cables from the Y-relay board.

To disconnect the Y-flexible cable:

Remove the wiring harness tiewrap and detach the core attached with double-sided adhesive tape to the Y-relay board.

(4) Remove the push roller sensor flexible cable attached with double-sided adhesive tape to the Y-slider.



(5) Remove the two M3L6 binding head screws attaching the Y-relay board.

How to reinstall the Y-relay board

(1) Reattach the Y-relay board in the reverse order in which it was detached.

6.2.8 How to Replace the Cutting Mat

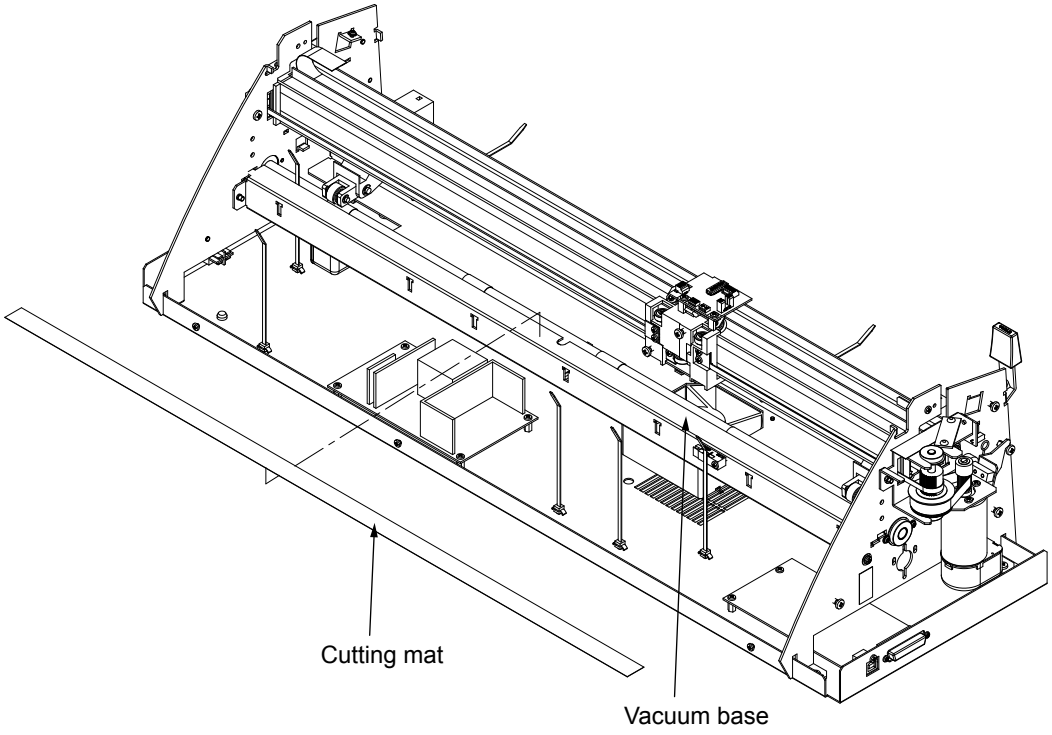
How to detach the cutting mat

(1) Detach the center cover (see Subsection 6.1.3 or 6.1.4).

(2) Detach the front guide (see Subsection 6.1.5 or 6.1.6).

(3) Detach the pen block (see Subsection 6.2.5).

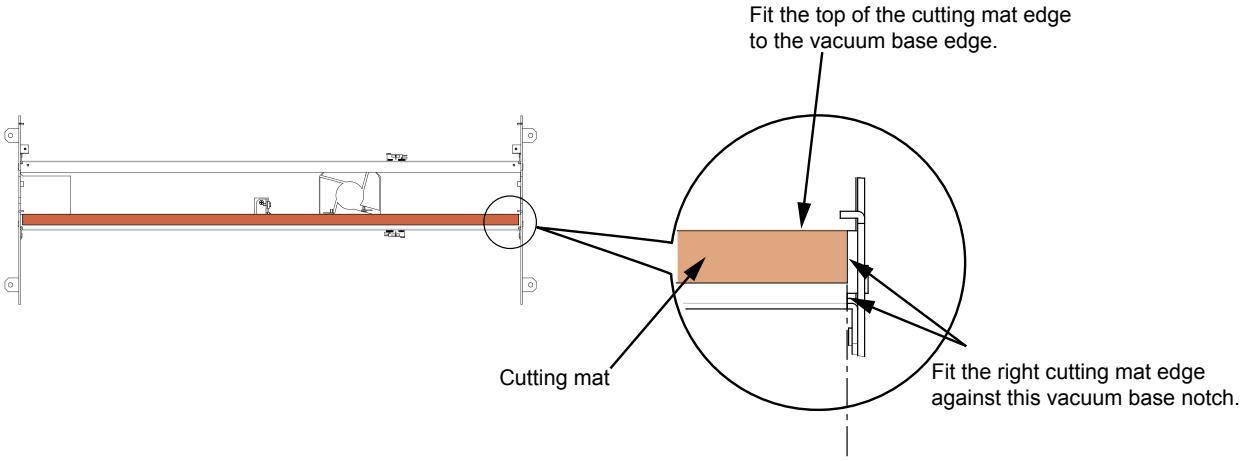
(4) Peel off the cutting mat from the vacuum base.



How to reinstall the cutting mat

(1) Clean the surface of the vacuum base with alcohol where the cutting mat was attached.

(2) Attach the new cutting mat to the vacuum base as shown below.


Fit the top of the cutting mat edge
to the vacuum base edge.
Cutting mat
Fit the right cutting mat edge
against this vacuum base notch.

(3) Make sure that there is no air between the cutting mat and the vacuum base.

(4) Attach the pen block (see Subsection 6.2.5).

(5) Reattach the other parts in the reverse order in which they were detached.

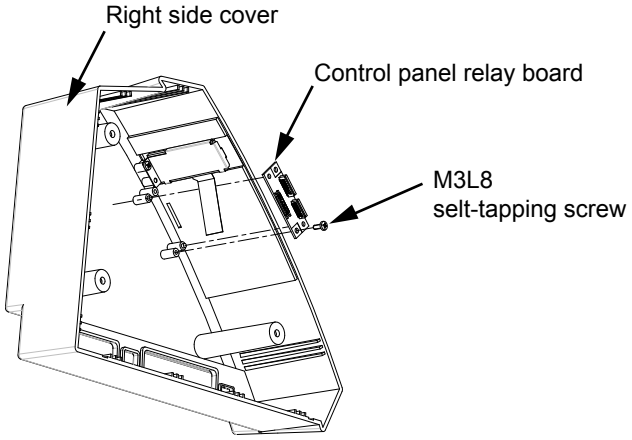
6.2.9 How to Replace the Control Panel Relay Board, LCD and Membrane Switch Panel

How to detach the control panel relay board, LCD and membrane switch panel

(1) Detach the right side cover (see Subsection 6.1.1).

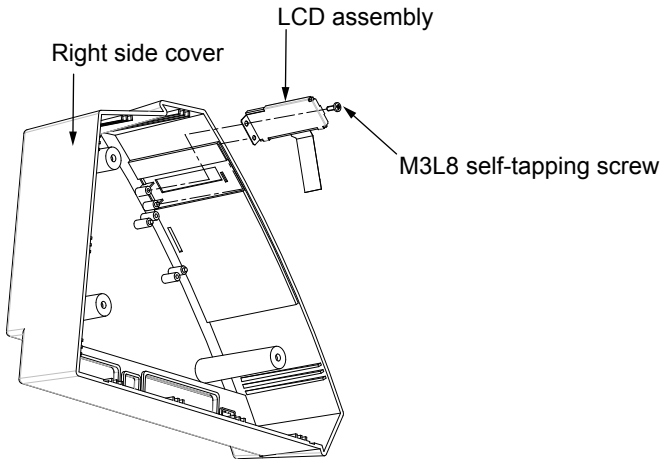
(2) Disconnect the flexible cables from connector J402 and J403 on the control panel relay board.

(3) Remove the M3L8 self-tapping screw attaching the control panel relay board.



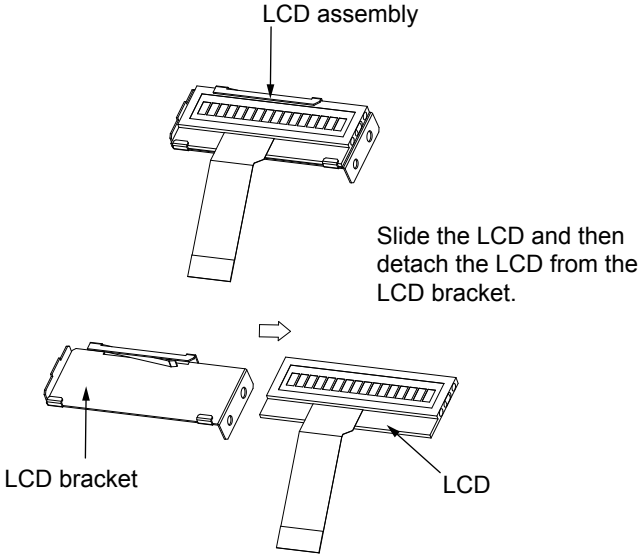
(4) Detach the control panel relay board from the right side cover.

(5) Remove the M3L8 self-tapping screw attaching the LCD assembly.

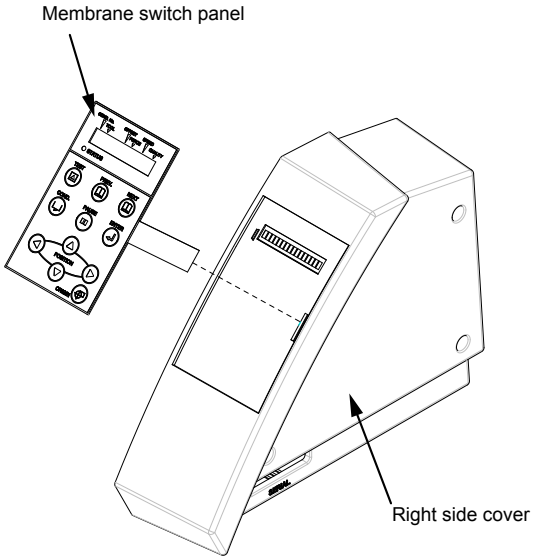


(6) Detach the LCD assembly from the right side cover.

(7) Slide the LCD and then detach the LCD from the LCD bracket.



(8) Peel off the membrane switch panel from the right side cover.



How to reinstall the control panel relay board, LCD assembly and membrane switch panel

(1) Clean the surface of the right side cover with alcohol where the membrane switch panel was attached.

(2) Reattach the LCD assembly to the right side cover.

(3) Attach the membrane switch panel to the right side cover so that it fits around the LCD window.

(4) Reattach the other parts in the reverse order in which they were detached.

6.2.10 How to Replace the Y-belt

How to detach the Y-belt

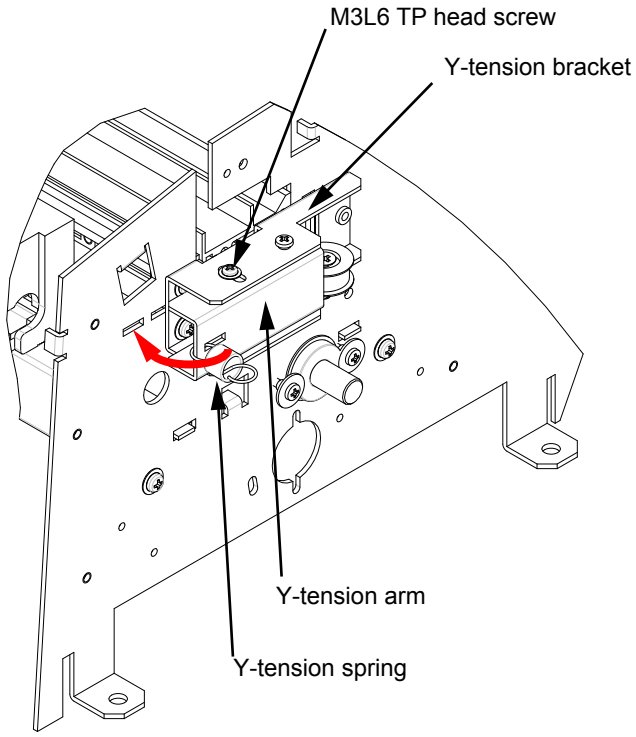
(1) Detach the right and left side covers (see Subsection 6.1.1 and Subsection 6.1.2).

(2) Detach the center cover (see Subsection 6.1.3 or 6.1.4).

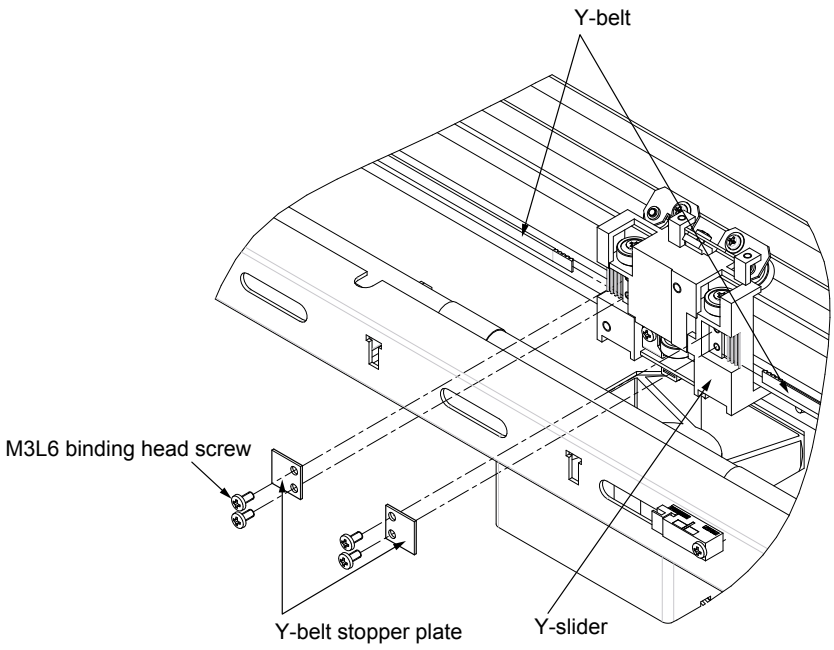
(3) Detach the pen block (see Subsection 6.2.5).

(4) Loosen the M3L6 TP head screw attaching the Y-tension arm.

(5) Push the Y-tension arm in the direction of the arrow as shown below, then detach the Y-tension spring hook from the left side plate.



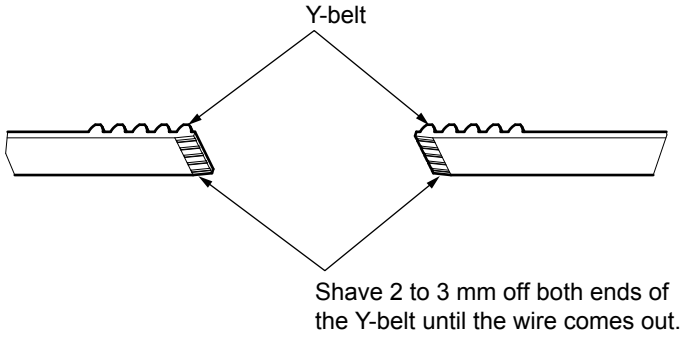
(6) Remove the four M3L6 binding head screws attaching the right and left Y-belt stopper plates to the slider.



(7) Detach the Y-belt from the unit.

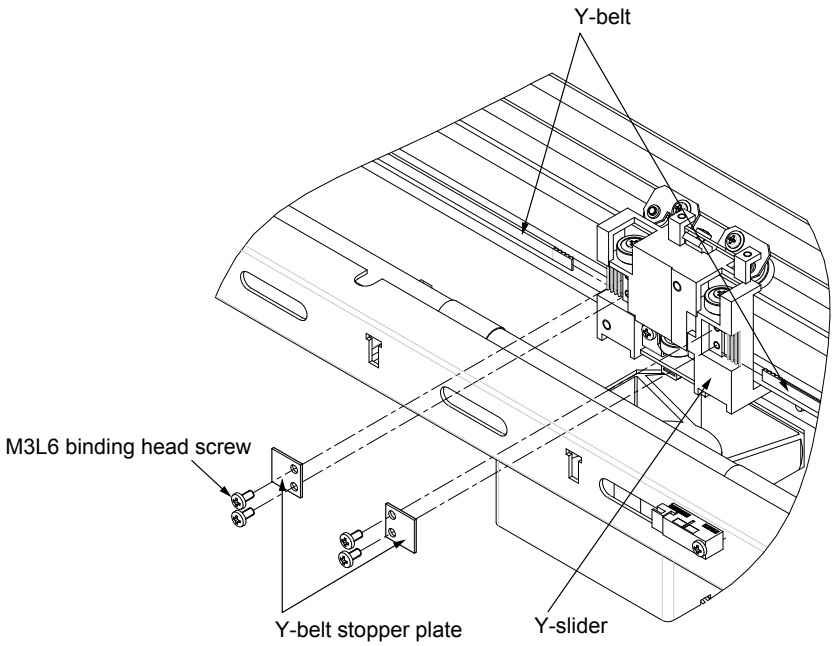
How to reinstall the Y-belt

(1) Shave 2 to 3 mm off both ends of the Y-belt until the wire comes out as shown below.



(2) Hang the Y-belt on both sides of the pulley.

(3) Attach both ends of the Y-belt to the Y-slider so that four notches of the Y-belt fit into the Y-slider, then attach with the Y-belt stopper plates removed in step (6) in the previous subsection.



(4) Attach the pen block (see Subsection 6.2.5).

(5) Reattach the other parts in the reverse order in which they were detached.

6.2.11 How to Replace the Y-motor

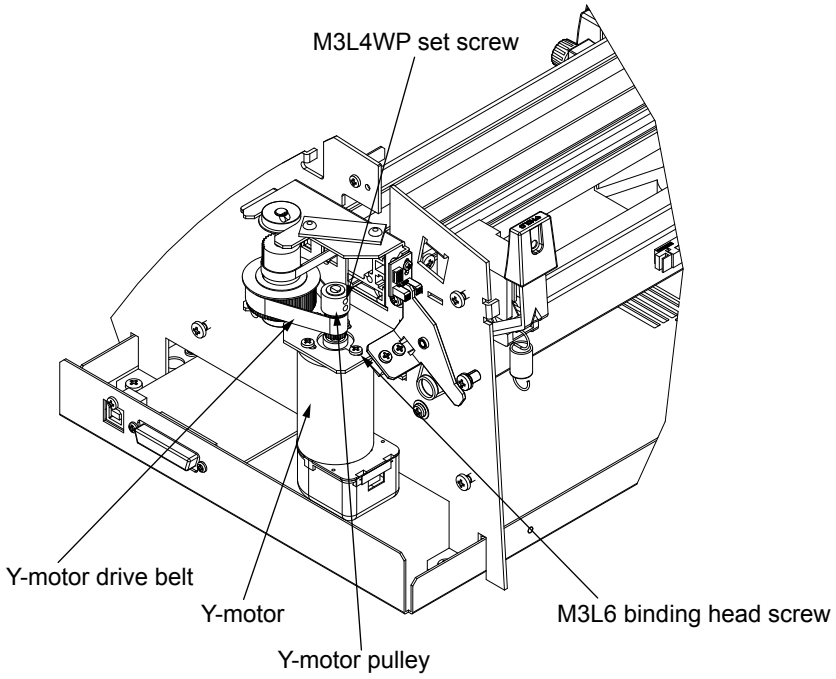
How to detach the Y-motor

(1) Detach the right side cover (see Subsection 6.1.1).

(2) Detach the front guide (see Subsection 6.1.5 or 6.1.6).

(3) Disconnect the Y-motor cables from connector J8 and J11 on the main board.

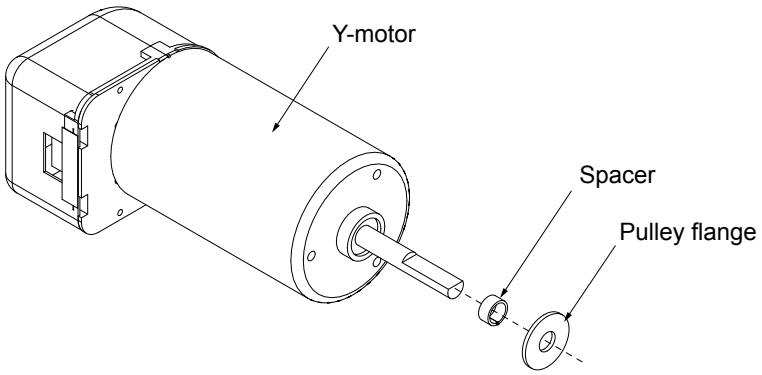
(4) Loosen the two M3L4WP set screws to detach the Y-motor pulley.



(5) Remove the three M3L6 binding head screws holding the Y-motor.

(6) Detach the Y-motor pulley, then detach the Y-motor.

(7) Detach the pulley flange and the spacer from the Y-motor.



How to reinstall the Y-motor

(1) Attach the pulley flange and the spacer to the new Y-motor.
(2) Attach the Y-motor to the Y-motor bracket.
(3) Hang the Y-drive belt on the Y-motor pulley and the Y-idler pulley.
(4) Attach the Y-motor pulley to the Y-motor.
(5) Tighten the two M3L4WP set screws that hold the Y-motor pulley.
(6) Spread a suitable quantity of Loctite 222 on the two M3L4WP set screws that hold the Y-motor pulley.
(7) Spread a suitable quantity of the Shinetu silicon grease G501 on the Y-motor pulley and Y-idler pulley.
(8) Use the force gauge to pull the Y-drive motor pulley flange with a 1.2 kg to 1.3 kg force.
(9) Tighten the three M3L6 binding head screws that hold the Y-motor.
(10) Move the pen block and check the tension of the Y-drive belt.
(11) Reattach the other parts in the reverse order in which they were detached.

6.2.12 How to Replace the X-motor

The CE5000-40 and the CE5000-60 models use the same X-motor.

The CE5000-120/120AP model uses a different X-motor from the CE5000-40 and the CE5000-60 models.

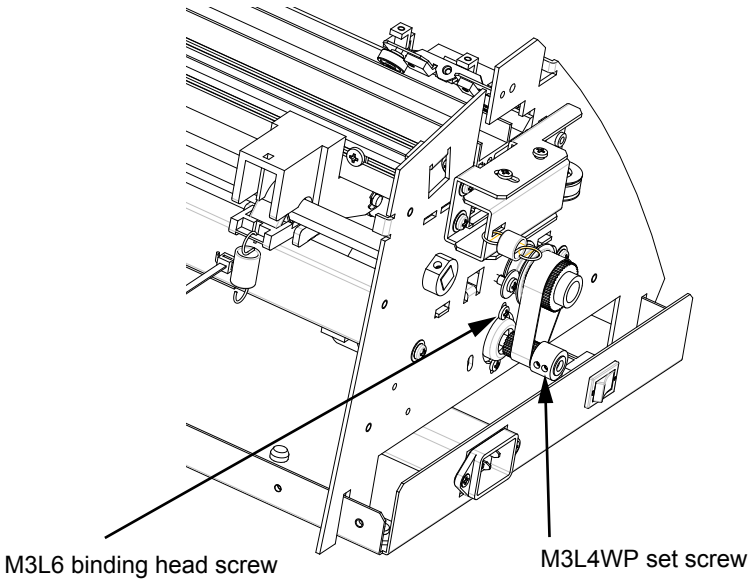
How to detach the X-motor

(1) Detach the left side cover (see Subsection 6.1.2).

(2) Detach the front guide (see Subsection 6.1.5 or 6.1.6).

(2) Detach the rear guide (see Subsection 6.1.7).

(3) Loosen the two M3L4WP set screws holding the X-motor pulley then detach the X-motor pulley.



(4) Remove the three M3L6 binding head screws holding the X-motor then detach the X-motor.

(5) Disconnect the X-motor cable from its connector(s) on the main board.

CE5000-40/60:..... Disconnect the encoder cable from the motor and disconnect the motor cable from the relay connector.

CE5000-120/120AP:.... Disconnect the cables from connector J1102 and J1104 on the X-motor relay board.

(6) Remove the wiring harness tie-wrap holding the X-motor harness and detach the X-motor.

How to reinstall the X-motor

(1) Attach the X-motor to the left side plate.

(2) Connect the X-motor cable to its connector(s) on the main board.

CE5000-40/60: ..... Connect the cables to connector J7 and J10 on the main board.

CE5000-120/120AP: Connect the cables to connector J1102 and J1104 on the X-motor relay board.

(3) Fasten the X-motor harness with the wiring harness tie-wrap.

(4) Hang the X-drive belt on the X-drive pulley.

(5) Attach the X-motor pulley to the X-motor.

(6) Tighten the two M3L4WP set screws holding the X-motor pulley.

(7) Spread a suitable quantity of Loctite 222 on the M3L4WP set screw holding the X-motor pulley.

(8) Use the force gauge to pull the X-drive motor pulley flange with a 1.2 kg to 1.3 kg force.

(9) Tighten the mounting screws that hold the X-motor.

(10) Spread a suitable quantity of the Shinetu silicon grease G501 on the X-motor pulley.

(11) Move the X-drive pulley and check the tension of the X-drive belt.

(12) Reattach the other parts in the reverse order in which they were detached.

6.2.13 How to Replace the Y-flexible Cable

How to detach the Y-Flexible cable

(1) Detach the right side cover (see Subsection 6.1.1).

(2) Detach the center cover (see Subsection 6.1.3 or 6.1.4).

(3) Detach the front guide (see Subsection 6.1.5 or 6.1.6).

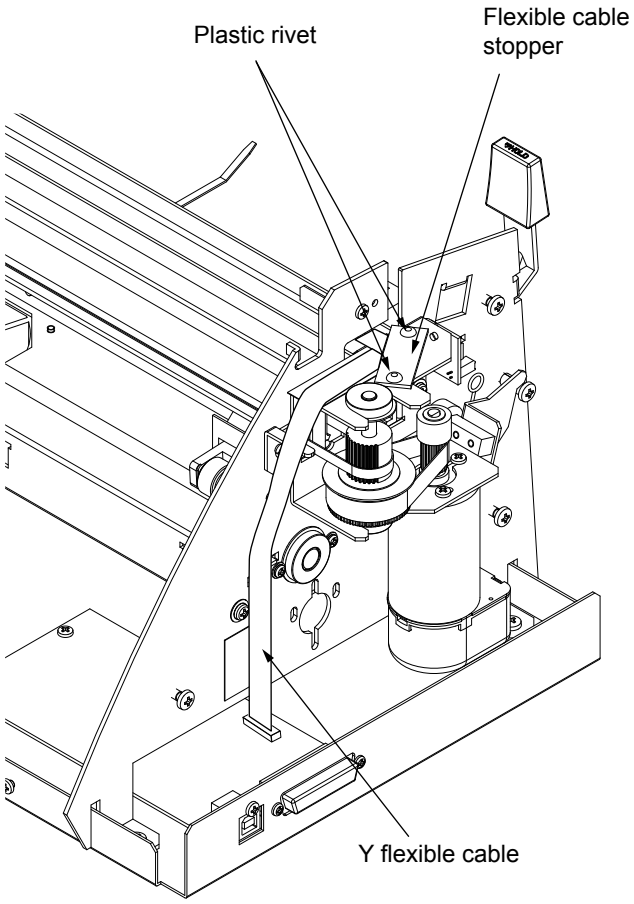
(4) Remove the wiring harness tie-wrap holding the Y-flexible cable and the core on the Y-relay board.

(5) Detach the core attached with double-sided adhesive tape to the Y-relay board.

(6) Disconnect the Y-flexible cable from connector J501 on the Y-relay board.

(7) Disconnect the Y-flexible cable from connector J1 on the main board.

(8) Remove the four plastic rivets holding the flexible cable stopper.



(9) Remove the Y-flexible cable attached with double-sided adhesive tape to the Y-rail.

How to reinstall the Y-flexible cable

(1) Clean the surface of the Y-rail with alcohol to remove any glue from the double-sided adhesive tape that was attached the Y-flexible cable.

(2) Affix two pieces of double-sided adhesive tape to the flexible cable guide of the Y-rail. The first piece of tape should start at the right end of the Y-rail. The position of the second piece of tape depends on the model.

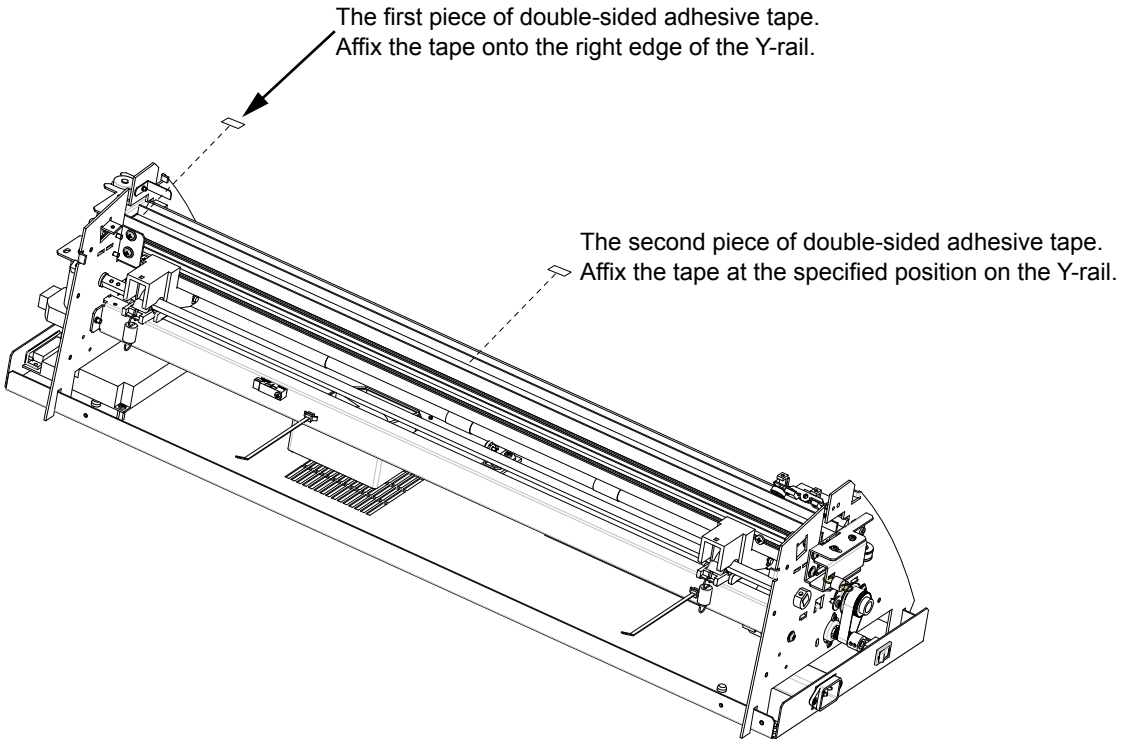
Size of the double-sided adhesive tape:

10 mm wide, 15 mm long for the first piece of tape (Nitto #500)

10 mm wide, 50 mm long for the second piece of tape (Nitto #500)

Position of the second piece of tape:

CE5000-40:	about 260 mm from the right end of the Y-rail
CE5000-60:	about 360 mm from the right end of the Y-rail
CE5000-120/120AP:	about 660 mm from the right end of the Y-rail

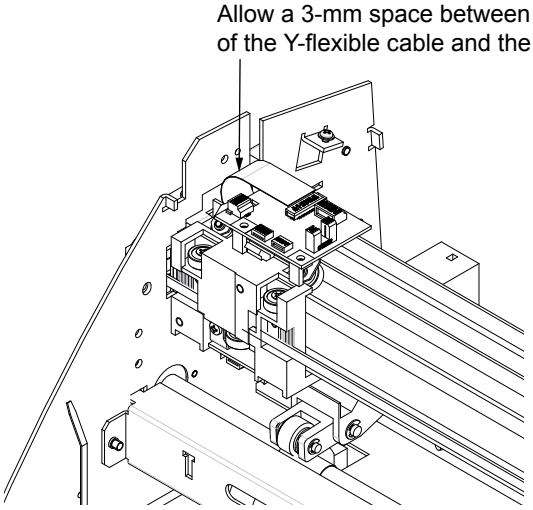

The first piece of double-sided adhesive tape.
Affix the tape onto the right edge of the Y-rail.
The second piece of double-sided adhesive tape.
Affix the tape at the specified position on the Y-rail.

(3) Insert the Y-flexible cable into the core and connect the Y-flexible cable to connector J501.

(4) Attach the core to the Y-relay board using double-sided adhesive tape.

(5) Move the pen block to the left end.

(6) Fit the Y-flexible cable into the Y-rail as shown below. The Y-flexible cable shouldn't touch the left side plate. Allow a 3-mm space between the left end of the Y-flexible cable and the left side plate.



(7) Secure the Y-flexible cable onto the flexible cable guide of the Y-rail using double-sided adhesive tape.

(8) Reattach the other parts in the reverse order in which they were detached.

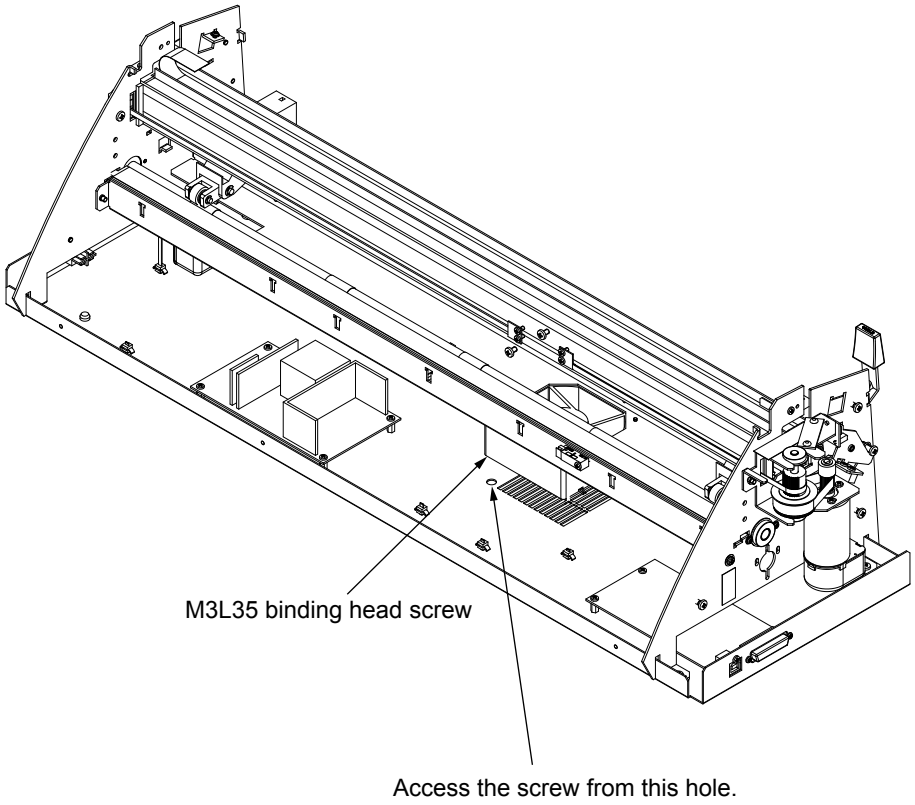
6.2.14 How to Replace the Vacuum Fan

How to detach the vacuum fan

(1) Detach the right and left side covers (see Subsection 6.1.1 and Subsection 6.1.2).

(2) Detach the front guide (see Subsection 6.1.5 or 6.1.6).

(3) Detach the rear guide (see Subsection 6.1.7).



(4) Remove the harness tie-wrap holding the vacuum fan cables.

(5) Disconnect the vacuum fan from its connector.
CE5000-40 and CE5000-60: connector J9 on the main board.
CE5000-120/120AP: connector J1202 or J1203 on the fan relay board.

(6) Use a long screwdriver to remove the two M3L35 binding head screws holding the vacuum fan from the holes of the bottom chassis.

(7) Detach the vacuum fan from the main unit.

How to reinstall the vacuum fan

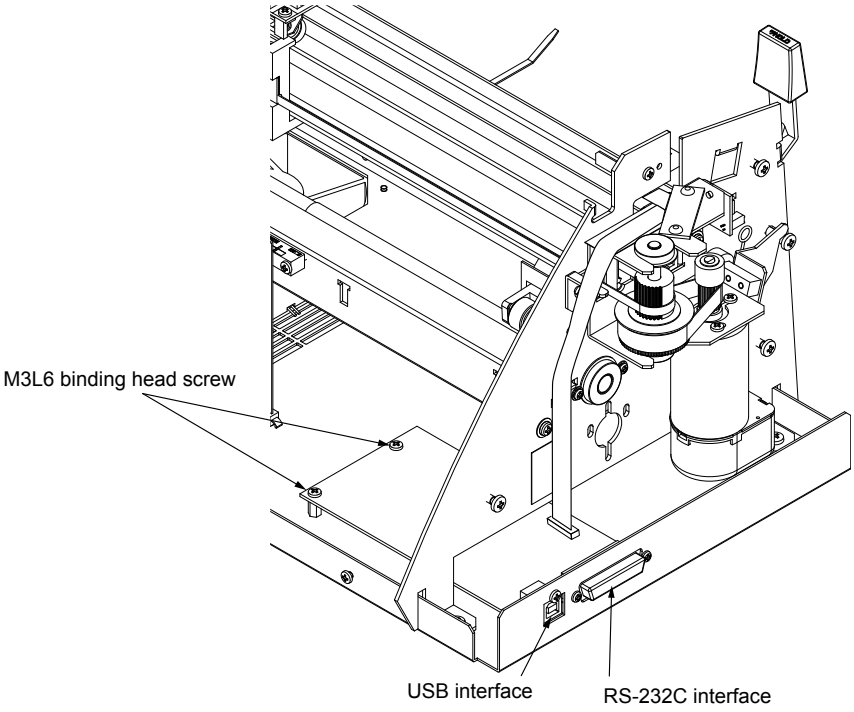
(1) Reattach in the reverse order in which it was detached.

6.2.15 How to Replace the Main Board

How to detach the main board

(1) Detach the right cover (see Subsection 6.1.1).

(2) Detach the front guide (see Subsection 6.1.5 or 6.1.6).



(3) Remove the two screws holding the RS-232C interface connector to the chassis.

(4) Remove the screw holding the USB interface connector to the chassis.

(5) Disconnect all the cables and flexible cables from their connectors on the main board.

(6) Remove the four M3L6 binding head screws holding the main board.

(7) Detach the main board from the chassis.

How to reinstall the main board

(1) Reattach in the reverse order in which it was detached.

(2) Install the main board corresponding to each model when replaying to the new main board.

(3) If you have “BOOT START ERROR” when you replaced the main board, Install the firmware for new main board (see Section 7.10).

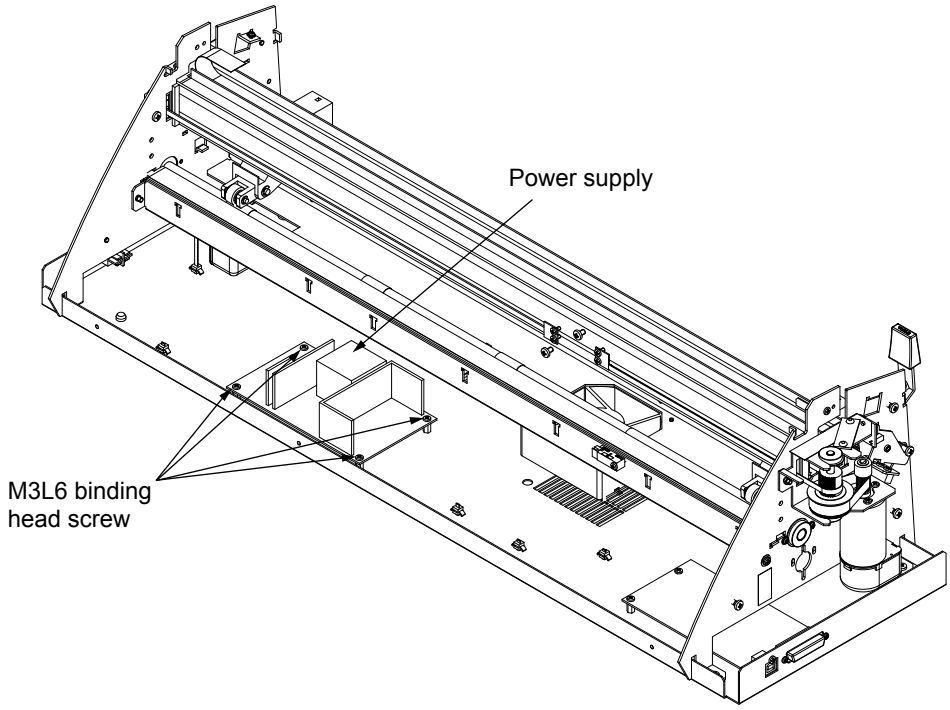
(4) Perform any adjustments required (see Section 7.2).

6.2.16 How to Replace the Power Supply

How to detach the power supply

(1) Detach the front guide (see Subsection 6.1.5 or 6.1.6).

(2) Disconnect the cables from the connectors CN1 and CN2.



(3) Remove the four M3L6 binding head screws holding the power supply to the bottom of the chassis.

(4) Detach the power supply from the chassis.

How to reinstall the power supply

(1) Reattach in the reverse order in which it was detached.

6.2.17 How to Replace the Drive Roller

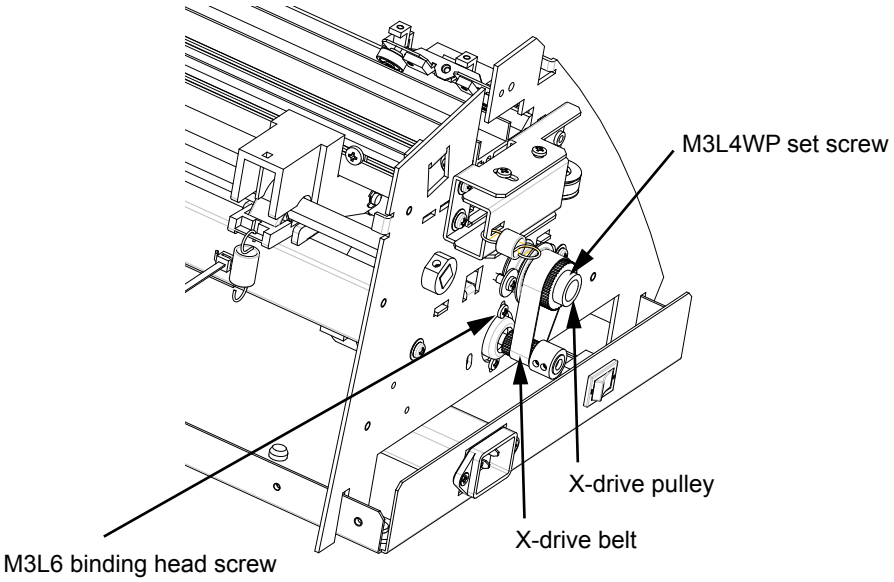
How to detach the drive roller

(1) Detach the right and left side covers (see Subsection 6.1.1 and Subsection 6.1.2).

(2) Detach the front guide (see Subsection 6.1.5 or 6.1.6).

(3) Detach the rear guide (see Subsection 6.1.7).

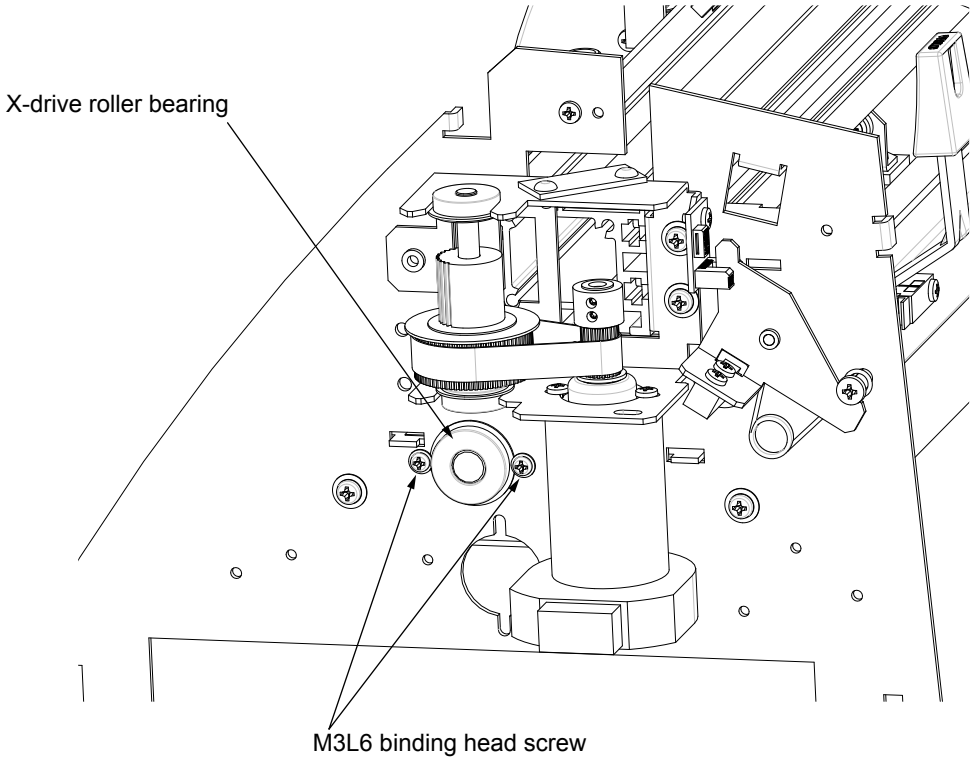
(4) Loosen the two M3L6 binding head screws holding the X-motor.



(5) Push up the X-motor from inside the left side plate then remove the X drive belt from the X-drive pulley.

(6) Loosen the two M3L4WP set screws holding the X-drive pulley and detach the X-drive pulley from the drive roller.

(7) Remove the two M3L6 binding screws holding the X-drive roller bearing with a flange.



(8) Slide out the X-drive roller from the unit. There is a bearing stopper flange and a bush on the left side plate; don't miss those parts when removing the X-drive roller.

How to reinstall the drive roller

(1) Reattach in the reverse order in which it was detached.

(2) Spread a suitable quantity of Loctite 222 on the M3L4WP set screw holding the X-drive pulley.

(3) Use the force gauge to pull the X-drive motor pulley flange with a 1.2 kg to 1.3 kg force.

(4) Tighten the mounting screws that hold the X-motor.

(5) Spread a suitable quantity of the Shinetu silicon grease G501 on the X-motor pulley.

(6) Move the X-drive pulley and check the tension of the X-drive belt.

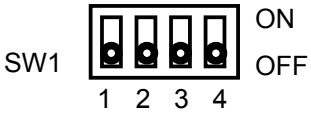
(7) Reattach the other parts in the reverse order in which they were detached.

7. ELECTRICAL ADJUSTMENTS

7.1 DIP Switch Settings

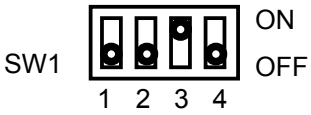
Factory presets (Normal Mode)

Set all the bits to OFF.



NOV-RAM Clear

Set bit 3 to ON.



7.2 List of Items Requiring Readjustment

If you replaced one of the units listed in the table below or altered their sensor positions, be sure to readjust the corresponding items.

Item \ Unit name	Main board	Power supply	Pen block	Pinch roller sensor	X,Y motor	Drive roller	X,Y Motor drive belt	Auto registration mark sensor (Except CE3000-120AP)
NOV-RAM clear	M							
Pen force adjustment	M		M	N				
Distance adjustment	M					M	M	
Auto registration mark sensor adjustment	N		N	N				M
Gain adjustment	M				M			
Menu setting	N							
Firmware update	M							
Belt tension adjustment					M	M	M	

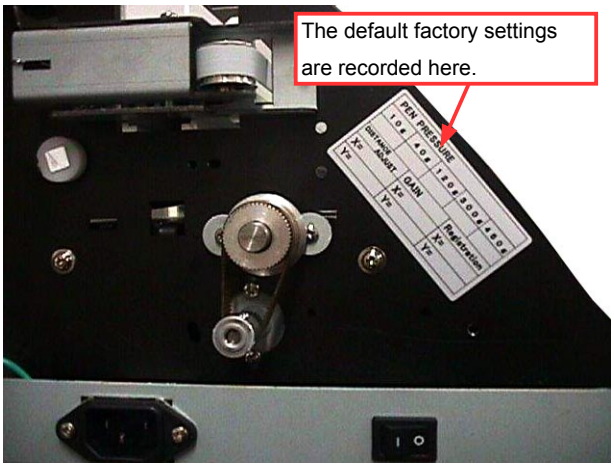
No mark: Unnecessary M: Must always be adjusted N: To be adjusted as necessary

Note: The main board must have the latest version of firmware unless otherwise specified.

7.3 Explanation of the Values of the Main Board Settings

(Default factory settings)

The default factory settings are recorded on the left side plate shown below.



The contents of an example record are shown below.

25	47	100	228	346
X= 0	X= 80	X= -		
Y= 4	Y= 50	Y= -		

Explanation of the values

Pen force values				
10 g	40g	120 g	300 g	450 g

Distance adjustment values	Gain adjustment values	Auto registration mark position adjustment values
X	X	X (when the option is installed)
Y	Y	Y (when the option is installed)

You can input the same values when you have replaced the main board without making any adjustments.

If you have changed any values by making adjustments, record those values for the next maintenance check.

7.4 Clearing the Non-Volatile RAM

When you replace the main board, you must clear the Non-Volatile RAM (NOV-RAM).

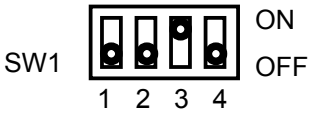
If you clear the Non-Volatile RAM, you will lose the setup parameters for each adjustment.

Input the adjustment values to the main board after you clear the Non-Volatile RAM.

How to clear the Non-Volatile RAM.

(1) Set SW1 to the NOV-RAM clear mode as shown below.

Set bit 3 to ON.



(2) Turn on the power to the plotter.

(3) The NOVRAM INIT. menu appears. The plotter immediately starts to clear the parameters on the NOV-RAM, and then sets the default values.

```
NOVRAM INIT.
```

(4) When the NOV-RAM clear operation is complete, a menu for model selection appears on the LCD panel.

```
CE5000-40CRP
```

(5) Select your plotter model using the UP and DOWN ARROW keys, and then press the ENTER key to register your plotter model setting.

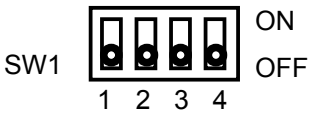
(6) When the model selection is complete, the END message appears on the LCD panel.

```
CE5000-40CRP END
```

(7) Turn off the power to the plotter.

(8) Return the SW1 setting to normal mode as shown below.

Set all the bits to OFF.



7.5 Adjusting the Pen Force

This adjustment will set the pen force.

If you replace the main board, use the following procedure to input the recorded adjustment values.

If you replace the moving coil and/or the pen block assembly, you must adjust the pen force using the following procedure.

How to adjust the pen force

(1) Mount a 0.9 mm diameter cutter pen in the pen holder.

(2) Load a sheet of paper in the plotter.

(3) Turn on the power while pressing the TEST and ENTER keys.

(4) Select the media mode.

(5) Press the PAUSE key to display the menu shown below.

```
MODEL SELECT
```

(6) Press the NEXT key until the following menu is displayed.

```
PEN PRES ADJ MT
```

(7) Press the ENTER key to display the menu shown below.

```
PRS 10g D/A= 20
```

(8) The pen is lowered. If you have replaced the moving coil and/or the pen block assembly, use the force gauge to measure the actual force. If you have only replaced the main board, input the adjustment values that were recorded.

Use the UP ARROW key or DOWN ARROW key to change the force setting. The number on the LCD will increase or decrease. If you have replace the moving coil and/or the pen block assembly, measure the actual pen force again.

If you replaced the moving coil and/or the pen block assembly, adjust the 10g-pen force. If the measured value is within the specification range (10±2g) or if you have input the recorded value, press the ENTER key to store the setting. The next specified pen force appears.

(9) Adjust the 40g-pen force. If the measured value is within the specification range (40±4g) or if you have input the recorded value, press the ENTER key to store the setting. The next specified pen force appears.

(10) Adjust the 120g-pen force. If the measured value is within the specification range (120±10g) or if you have input the recorded value, press the ENTER key to store the setting. The next specified pen force appears.

(11) Adjust the 300g-pen force. If the measured value is within the specification range (300±20g) or if you have input the recorded value, press the ENTER key to store the setting. The next specified pen force appears.

(12) Adjust the 450g-pen force. If the measured value is within the specification range (450±20g) or if you have input the recorded value, press the ENTER key to store the setting. (Only for the CE5000-120.)

Note: When adjusting the pen force, it is important to do it quickly. Delaying the pen force adjustment changes the temperature of the actuator and causes artificially lower readings. When this happens the actual pen force may be higher than the specification. This is especially true for the upper pen force adjustment.

(13) Press the NEXT key to complete this adjustment.

Specification of the actual pen force

Specified pen force	Actual force range	Remark
10g	8 to 12g	
40g	36 to 44g	
120g	110 to 130g	
300g	280 to 320g	
450g	430 to 470g	Only for the CE5000-120

7.6 Adjusting the Distance Accuracy

This adjustment will set the distance accuracy.

If you replace the main board, use the following procedure to input the recorded adjustment values.

If you replace the grit roller, you must adjust the distance accuracy using the following procedure.

How to adjust the distance accuracy

(1) Mount a ceramic pen (0.2 mm tip size) in the pen holder.

(2) Load a sheet of A2 size paper or ANSI C size paper in the plotter.

(3) Turn on the power while pressing the TEST and ENTER keys.

(4) Select the media mode.

(5) Press the PAUSE key to display the menu shown below.

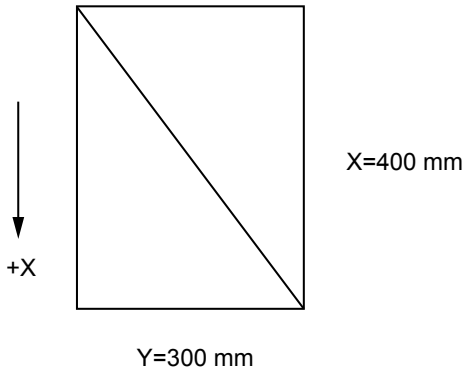
```
MODEL SELECT
```

(6) Press the NEXT key until the following menu is displayed.

```
DISTANCE ADJUST
```

(7) Press the ENTER key to start the test. The plotter immediately plots the test pattern, and the following menu appears.

```
DADJ.X=  0 Y=  0
```



(8) Remove the paper and measure the X- and Y-axis distances. If you have replaced the main board only, use the recorded values.

(9) Input the values using the POSITION keys.

Press the LEFT or RIGHT ARROW key to select the Y-axis or X-axis distance adjustment.

Press the UP or DOWN ARROW key to change the Y-axis or X-axis distance adjustment value.

The formula of the input value is as follows:

Input value for X-axis = (400mm - measured X distance) x 10

Input value for Y-axis = (300mm - measured Y distance) x 10

For example:

If you measured 299.0mm for the Y-axis then input 10 for the adjustment value.

Adjustable range: -9.9 mm to +9.9mm , 0.1-mm steps

(11) Press the ENTER key to store the setting. The following menu appears as like.

If you are not adjusted about the distance, L=500.00 appears. This is only displaying the calculated value.

```
XY LENG L=500.00
```

(12) If you wish to complete this adjustment, press the NEXT key. If you wish to plot the adjusted test pattern, press the ENTER key.

7.7 Inputting the Servo Gain

If you replace the main board or the motor, use the following procedure to input the recorded adjustment values.

How to input the servo gain

(1) Load a cutting sheet in the plotter.

(2) Turn on the power while pressing the TEST and ENTER keys.

(3) Select the media mode.

(4) Press the PAUSE key to display the menu shown below.

```
MODEL SELECT
```

(5) Press the NEXT key until the following menu is displayed.

```
SET GAIN
```

(6) Press the ENTER key to display the menu shown below.

```
GAIN X= 80 Y= 50
```

(7) Input the values that are recorded on the chassis. (default factory settings)

Press the UP or DOWN ARROW key to change the X-Gain value.

Press the LEFT or RIGHT ARROW key to change the Y-Gain value.

If the default factory settings were not shown on the label input the following value.

Model	X-Gain	Y-Gain
CE5000-40	32	32
CE5000-60	45	42
CE5000-120/120AP	80	50

(8) Press the ENTER key to store the setting and complete the adjustment.

7.8 Setting the Auto-Registration Mark Sensor Option

If you have the auto-registration mark sensor option, you must set the MARK OPTION mode to ON.

How to set the auto-registration mark sensor option

(1) Turn on the power while pressing the TEST and ENTER keys.

(2) Select the media mode.

(3) Press the PAUSE key to display the menu shown below.

```
MODEL SELECT
```

(4) Press the NEXT key until the following menu is displayed.

```
MARK OPTION
```

(5) Press the ENTER key to display the menu shown below.

```
MARK OPTION OFF
```

(6) Press the UP or DOWN ARROW key to change this setting to ON.

(7) Press the ENTER key to store the setting. This completes the setting.

7.9 Adjusting the Offset of the Auto-Registration Mark Sensor

If you have the auto-registration mark sensor option, you must adjust the offset of the auto-registration mark sensor.

How to set the auto-registration mark sensor option

(1) Load an A4 (Letter) or larger size sheet of paper in the plotter. The paper must have a printed target cross mark. (Print out the target sheet (see page 7-12) on a printer.) The specification of the cross mark is 30 mm line length, and 0.3 to 0.5 mm line width.

(2) Mount a water-based ballpoint pen in the plotter.

(3) Turn on the power while pressing the TEST and ENTER keys.

(4) Select the media mode.

(5) Set the plotting conditions to the following settings:
Force: 12, Speed: 40, Quality: 1, Tool: Pen

(6) Press the PAUSE key to display the menu shown below.

```
MODEL SELECT
```

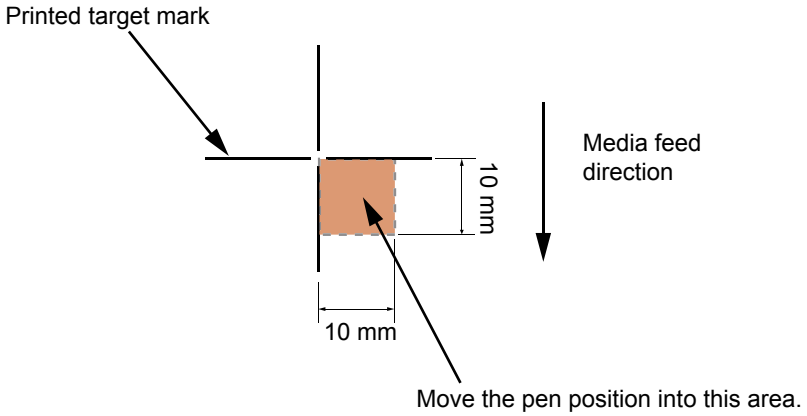
(7) Press the NEXT key until the following menu is displayed.

```
MARK SENS POS
```

(8) Press the ENTER key to display the menu shown below.

```
MARK ADJ SCAN
```

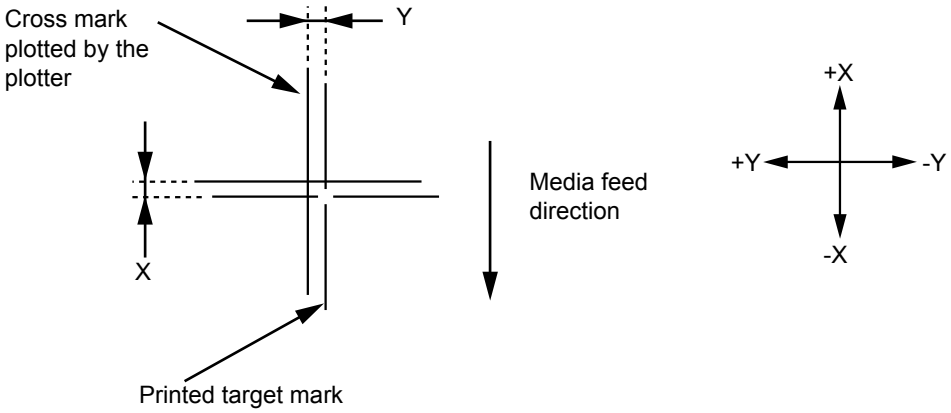
(9) Use the Position keys to move the pen position to the printed cross mark area shown below.



(10) Press the ENTER key to scan the printed cross mark. The plotter then plots a new cross mark based on the reading of the printed cross mark.
The following menu is displayed.

```
 X=00.0  Y=00.0
```

(11) Measure the offset between the printed cross mark and plotted cross mark.



(12) Set the offset value. Press the UP ARROW key or DOWN ARROW key to change the number.
Press the LEFT ARROW key or RIGHT ARROW key to change the digits of a number.
Press the ORIGIN key to select the X or Y direction.
Press the COND. key to select the + or - direction.

(13) Press the ENTER key to store the setting.

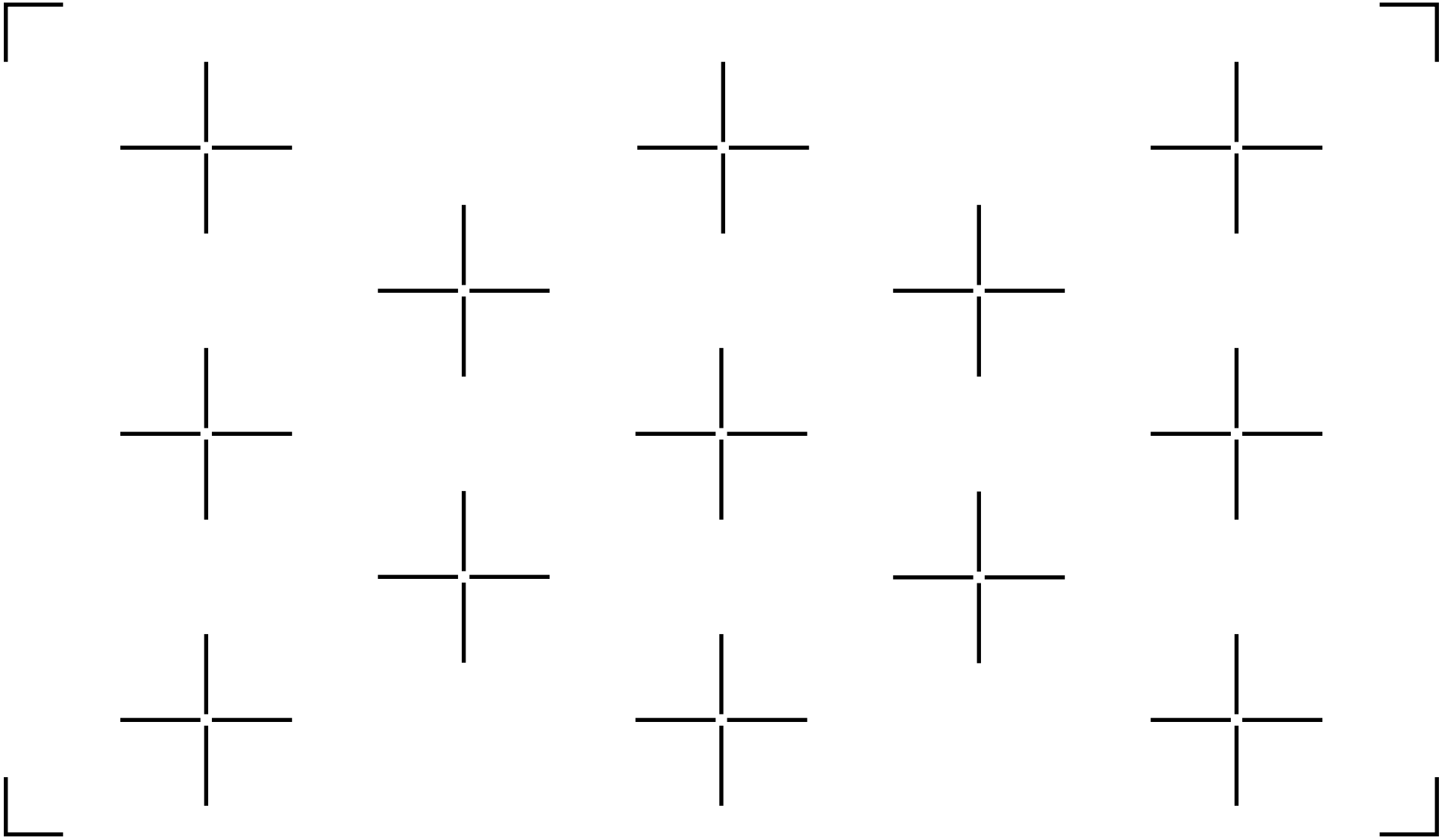
(14) Verify that the plotted cross mark line is located at the center of the printed cross mark line. Move the pen to the printed cross mark area. Press the ENTER key to repeat the scan as described in step (10).

```
MARK ADJ SCAN
```

(15) Repeat steps (9) to (14) if the location of the plotted cross mark is incorrectly positioned. If the location of the plotted cross mark is in the correct position, press the NEXT key and then turn off the power.

AUTO REGISTRATION MARK TARGET

The specification of the cross mark is 30mm line length, and 0.3 to 0.5mm line width.



7.10 Upgrading the System Firmware

To upgrade the system firmware you need to have the following files. In addition, you need to use a computer and USB cable.

- CE50.X :CE5000 firmware (Use later version than 1.5 for the CE5000-120AP)
- SEND.EXE :Utility to transfer files using Windows®
- OPS662 :USB Driver software for CE5000-60/120
- OPS660 :USB Driver software for CE5000-40CRP (Craft Robo Pro)
- OPS628 :USB Driver software for CE5000-120AP

Preparation

Install the USB Driver software to your computer before upgrading the system firmware.

How to upgrade the system firmware

(1) Connect the computer and the CE5000 via the USB interface.

(2) Turn on the power while pressing the RIGHT ARROW key and the LEFT ARROW key to display the menu shown below.

```
UPDATE  NO
```

(3) Select “YES” using the UP ARROW or DOWN ARROW key.

```
UPDATE  YES
```

(4) Press the ENTER key to display the menu shown below.

```
PLEASE SEND PRG
```

(5) Send firmware to the plotter from the computer.
Execute SEND.EXE.
Select the system firmware file from the SEND.EXE menu.
Select CE5000 from the output menu.
Output the system firmware file to the CE5000.

(6) The following menu is displayed while data is being received.

```
 **KB RECEIVED
```

(7) When the upgrading is complete, the plotter will start the initialization routine.
When you install the firmware for the first time, model select menu appears, so select the model at this time.

(8) The firmware version is displayed during the initialization routine. Check the firmware version that you upgraded.

(9) Turn off the power.

7.11 Adjusting the Pen Exchange Y Direction Value (CE5000-120AP)

This adjustment will set the pen exchange Y direction value.

This value is used for the 2nd pen pen exchange.

If you replace the main board, use the following procedure to input the recorded adjustment values.

(1) Load a cutting sheet in the plotter.

(2) Turn on the power while pressing the TEST and ENTER keys.

(3) Select the media mode.

(4) Press the PAUSE key to display the menu shown below.

```
MODEL SELECT
```

(5) Press the NEXT key until the following menu is displayed.

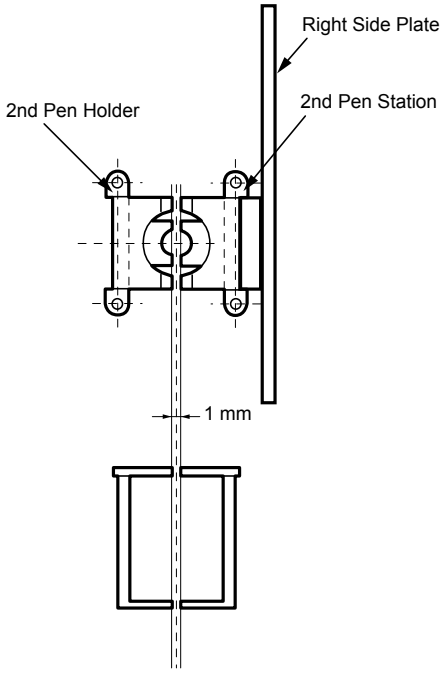
```
Pensel POS
```

(6) Press the ENTER key to display the menu shown below.

```
Pensel POS    0
```

(7) Press the RIGHT ARROW key; the 2nd pen holder moves to the 2nd pen station.
While the pens are being exchanged, continue pressing the LEFT ARROW key until the 2nd pen holder stops at the exchange position.

(8) Measure the gap between the 2nd pen holder and the 2nd pen station.



(9) Adjust the gap to be 1 mm.
Press the UP or DOWN ARROW key to change the Pensel POS value.
(1 unit = 0.05 mm)

(10) Press the ENTER key to store the setting and complete the adjustment.

7.12 Adjusting the Pen Exchange Height Value (CE5000-120AP)

This adjustment will set the pen exchange height value (SIKII).

This value is used for pen selection.

The plotter reads the pen height position when the power is turned on.

If the pen height position value is higher than this value (SIKII) the plotter knows it has taken the 2nd pen.

If the pen height position value is lower than this value (SIKII) the plotter knows it has taken the 1st pen.

If you replace the main board, use the following procedure to input the recorded adjustment values.

If you replace the pen block, you must adjust the pen exchange height value using the following procedure.

(1) Load a cutting sheet in the plotter.

(2) Turn on the power while pressing the TEST and ENTER keys.

(3) Select the media mode.

(4) Press the PAUSE key to display the menu shown below.

```
MODEL SELECT
```

(5) Press the NEXT key until the following menu is displayed.

```
PEN 1/2 SIKII
```

(6) Press the ENTER key to display the menu shown below.

```
DPOS=  0 SH=+80
```

(7) If you replaced the main board only, input the values that are recorded on the chassis. (default factory settings)
Press the UP or DOWN ARROW key to change the SIKII value.

(8) If you replaced the pen block, mount a cutter pen in the cutter pen holder.

(9) Press the RIGHT ARROW key to lower the cutter pen and read the DPOS value for the 1st pen height position.

(10) Mount a ball-point pen in the 2nd pen holder. (The pen holder on the right side.)

(11) Press the RIGHT ARROW key to lower the 2nd pen and read the DPOS value for the 2nd pen height position.

(12) Calculate the SIKII value and input the value using the UP ARROW key or the DOWN ARROW key.
SH(SIKII) = (1st pen DPOS + 2nd pen DPOS)/2
Example: 1st pen DPOS=122, 2nd pen DPOS=53
(122+53)/2=87.5
Input 87 for SH (SIKII) value (Input integer number of calculated value.)

(13) Press the ENTER key to store the setting and complete the adjustment.

7.13 Adjusting the Spacing Between Pen 1 and Pen 2 (CE5000-120AP)

This adjustment will set the spacing between pen 1 and pen 2.

If you replace the main board, use the following procedure to input the recorded adjustment values.

If you replace the pen block, you must adjust this value using the following procedure.

(1) Load an A4 (Letter) or larger size of paper in the plotter.

(2) Mount a water-based ballpoint pen in both the pen 1 holder and the pen 2 holder.

(3) Turn on the power while pressing the TEST and ENTER keys.

(4) Select the ROLL2 media mode.

(5) Press the COND key to display the 1 PEN condition setting menu.
Set condition 1 as shown below, and then press the ENTER key to store the setting.

```
1 PEN    12 30 2
```

(6) Press the COND key again, and then press the UP ARROW key to select the condition 2 setting menu.
Set condition 2 as shown below, and then press the ENTER key to store the setting.

```
2 PEN    12 30 2
```

(7) Press the PAUSE key to display the menu shown below.

```
DISTANCE ADJUST
```

(8) Press the PREV key until the menu shown below is displayed.

```
PEN 1/2 ADJ(M)
```

(9) Press the ENTER key to display the menu shown below.

```
PLOT ADJ PAT.
```

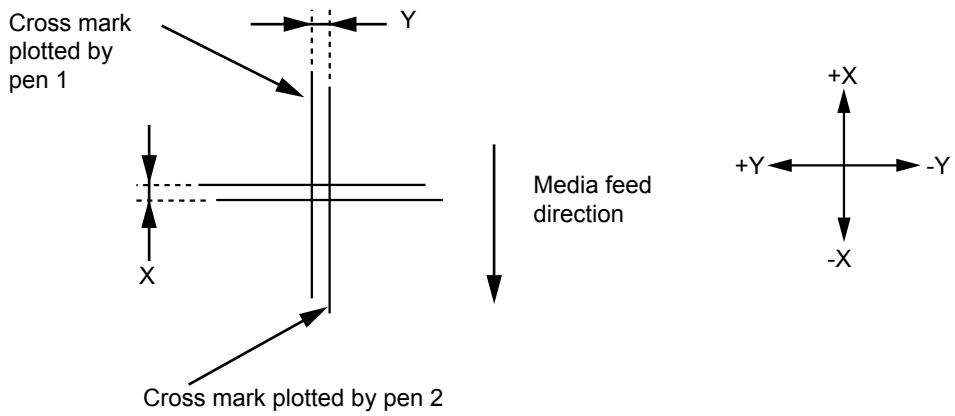
(10) Use the ARROW keys to move the pen to an open area to plot the cross marks.

(11) Press the ENTER key to plot cross marks by pen 1 and pen 2.

(12) After plotting the two cross marks, the following menu is displayed.

```
X=     0  Y=     0
```

(13) Measure the offset between the pen 1 cross mark and the pen 2 cross mark.



(14) Set the offset value. Press the UP ARROW key or DOWN ARROW key to change the number based on the pen 2 cross mark.
Press the RIGHT ARROW key or LEFT ARROW key to select the X or Y direction.

(15) Verify that the plotted pen 1 cross mark line is located at the center of the plotted pen 2 cross mark line.

(16) Repeat steps (8) to (15) if the plotted cross marks are incorrectly positioned. If the plotted cross marks are in the correct positions, press the ENTER key to store the setting and complete the adjustment.

8 SERVICE MODES

8.1 Sensor Test Mode

This mode checks the sensor status. If there is a bad sensor you will observe one of the symptoms in the table below.

Please check the relevant sensor(s).

Sensor	Symptom
Y home sensor	The pen block hits the right side plate.
Cam sensor	The plotter displays “LOAD MEDIA!” when media is already loaded.
Push roller sensor	The pen block hits the left side plate.
+X, -X media sensor	Media drops out of the plotter.

How to test the sensors

(1) Load an A4 (Letter) or larger size sheet of paper in the plotter.

(2) Turn on the power while pressing the TEST and ENTER keys.

(3) Select the media mode.

(4) Press the PAUSE key to display the menu shown below.

```
MODEL SELECT
```

(5) Press the NEXT key until the following menu is displayed.

```
SENSOR TEST
```

(6) Press the ENTER key to display the status shown below.

```
YH CH PH +XH -XH
```

Y: Y home sensor, C: Cam sensor, P: Push roller sensor, +X: +X media sensor, -X: -X media sensor

(7) Cover the front media sensor with a piece of paper.
The status of +X changes from “L” to “H”.

(8) Cover the rear media sensor with a piece of paper.
The status of -X changes from “L” to “H”.

(9) Move the pen block to the far right. When the pen block reaches the home position flag, the status of Y changes from “L” to “H”.

(9) Lower the media set lever to raise the push rollers. The status of C changes from “L” to “H”.

(10) Move the pen block to the left and right. When the pen block crosses the push roller, the status of P changes from “L” to “H”.

(11) When testing is complete, turn off the power to the plotter.

8.2 Control Panel Membrane Switch Test Mode

This mode checks the control panel membrane switch status. If there is a bad switch you may have trouble with the control panel membrane switch panel or the control panel relay board.

How to test the control panel membrane switches

(1) Load an A4 (Letter) or larger size sheet of paper in the plotter.

(2) Turn on the power while pressing the TEST and ENTER keys.

(3) Select the media mode.

(4) Press the PAUSE key to display the menu shown below.

```
MODEL SELECT
```

(5) Press the NEXT key until the following menu is displayed.

```
KEY TEST
```

(6) Press the ENTER key to display the status shown below.

```
00 0000 0000
```

(7) Press each key on the control panel; the status will change from “0” to “1”.

The status of each digit:

Key	Digit
NEXT	1st digit
PREV.	2nd digit
ORIGIN	3rd digit
TEST	4th digit
COND	5th digit
ENTER	6th digit
DOWN ARROW	7th digit
UP ARROW	8th digit
RIGHT ARROW	9th digit
LEFT ARROW	10th digit
PAUSE	STATUS Lamp (lights when the PAUSE key is pressed, but only the first time)

(8) When testing is completed, turn off the power to the plotter.

8.3 Clear Setup Mode

This mode returns all the conditions to their default settings.

How to clear the setups

(1) Turn on the power while pressing the UP ARROW key to display the menu shown below.

```
HL  metric ENG
```

(2) Select the default mode using the UP ARROW or DOWN ARROW key.

```
HL  metric ENG
```
HP-GL, Metric unit, English

```
HL inch ENG
```
HP-GL, Inch unit, English

```
GL metric KANA
```
GP-GL, Metric unit, Japanese

(3) Press the ENTER key to store the setting.
Wait a few moments for the plotter to start the initialization routine.

(4) Turn off the power to the plotter when the initialization routine has finished.

CE5000 Conditions (HP-GL Inch Eng)

Condition	Force	Speed	Pen Type	Offset	Quality
1	12	30	09U	0	2
2	14	30	09U	0	2
3	17	30	15U	0	2
4	25	10	15U	0	1
5	20	10	15U	0	1
6	20	10	15U	0	1
7	20	10	15U	0	1
8	17	10	15U	0	1
9	20	10	15U	0	1

RS-232C	Baud Rate	Parity	Data Bit	Handshake
	9800	N	8	H

Command	HP-GL	HP-GL Origin		Lower Left
Pen Up Speed		Auto	Step Pass	1
Offset Force	4	Offset Angle	30	
Rotate	Off	Page Length		196”
Display Unit	inch	Sort	Off	
Init. Down Force		0	Auto Pre Feed	Off, 3ft
Expand	Off			

Cond.	Thick Mode	Overcut1	Overcut2	Dist. Adj	X	Y
1	Off	0.008”	0.008”	Off	0.00%	0.00%
2	Off	0.008”	0.008”	Off	0.00%	0.00%
3	Off	0.008”	0.008”	Off	0.00%	0.00%
4	Off	0.008”	0.008”	Off	0.00%	0.00%
5	Off	0.008”	0.008”	Off	0.00%	0.00%
6	Off	0.008”	0.008”	Off	0.00%	0.00%
7	Off	0.008”	0.008”	Off	0.00%	0.00%
8	Off	0.008”	0.008”	Off	0.00%	0.00%

Mark Mode	Off	Mark Type	1	
Mark Size	0.40”	Mark Dist. Adj.		Off
Move Position		0”,0”		
Mark Offset	0.00”, 0.00”			
:,; Command	Enabled	W Command	Pen Up	
Model Emulated		7586	Cond. Priority	Manual
Init Blade CTRL		0.08” below		
Pen Up Move	Disabled	HP-GL Circle	Default	
Media Sensor		Enabled	Home Sensor	Enabled

Group	Condition
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8

Condition	Factor
1	1.00
2	1.00
3	1.00
4	1.00
5	1.00
6	1.00
7	1.00
8	1.00

CE5000 Conditions (HP-GL Metric Eng)

Conditions	Force	Speed	Pen Type	Offset	Quality
1	12	30	09U	0	2
2	14	30	09U	0	2
3	17	30	15U	0	2
4	25	10	15U	0	1
5	20	10	15U	0	1
6	20	10	15U	0	1
7	20	10	15U	0	1
8	17	10	15U	0	1
9	20	10	15U	0	1

RS-232C	Baud Rate	Parity	Data Bit	Handshake
	9800	N	8	H

Command	HP-GL	HP-GL Origin		Lower Left
Pen Up Speed		Auto	Step Pass	1
Offset Force	4	Offset Angle	30	
Rotate	Off	Page Length		5000mm
Display Unit	mm	Sort	Off	
Init. Down Force		0	Auto Pre Feed	Off, 1m
Expand	Off			

Cond.	Thick Mode	Overcut1	Overcut2	Dist. Adj	X	Y
1	Off	0.2mm	0.2mm	Off	0.00%	0.00%
2	Off	0.2mm	0.2mm	Off	0.00%	0.00%
3	Off	0.2mm	0.2mm	Off	0.00%	0.00%
4	Off	0.2mm	0.2mm	Off	0.00%	0.00%
5	Off	0.2mm	0.2mm	Off	0.00%	0.00%
6	Off	0.2mm	0.2mm	Off	0.00%	0.00%
7	Off	0.2mm	0.2mm	Off	0.00%	0.00%
8	Off	0.2mm	0.2mm	Off	0.00%	0.00%

Mark Mode	Off	Mark Type	1	
Mark Size	20mm	Mark Dist. Adj.		Off
Move Position		0.0mm, 0.0mm		
Mark Offset	0.0mm, 0.0mm			
:,; Command	Enabled	W Command	Pen Up	
Model Emulated		7586	Cond. Priority	Manual
Init Blade CTRL		2mm below		
Pen Up Move	Disabled	HP-GL Circle	Default	
Media Sensor		Enabled	Home Sensor	Enabled

Group	Condition
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8

Condition	Factor
1	1.00
2	1.00
3	1.00
4	1.00
5	1.00
6	1.00
7	1.00
8	1.00

9. TROUBLESHOOTING

9.1 The Plotter is Turned On But Doesn't Operate

Symptom	Verification item	Solution
The control panel's LED lamp does not light or the LCD does not display anything.	(1) Is the plotter being supplied with power?	No .....Check that the power cord is securely connected to the plotter's AC line inlet. Yes....Verify item (2).
	(2) Is the FPC504302 flexible cable securely connected to the main board and the control panel?	No .....Connect the flexible cable securely. Yes....Verify item (3).
	(3) Is the FPC504302 flexible cable broken?	No .....Verify item (4). Yes....Replace the FPC504302 flexible cable.
	(4) Is the AC line electrical output correct?	No .....Change the AC line. Yes....Verify item (5).
	(5) Does the power supply unit have a 5 V output?	No .....Replace the power supply unit. Yes....Replace the main board.

9.2 Media Loading Operations

Symptom	Verification item	Solution
The media drops to the front of the plotter.	(1) Is the front edge of the media curled?	Yes....Replace the media. No .....Verify item (2).
	(2) Is the front media sensor dirty?	Yes....Clean the front media sensor. No .....Verify item (3).
	(3) Is the front media sensor cable securely connected to the main board and the sensor?	Yes....Replace the front media sensor. No .....Connect the cable securely.
The media drops to the rear of the plotter.	(1) Is the rear edge of the media curled?	Yes....Replace the media. No .....Verify item (2).
	(2) Is the rear media sensor dirty?	Yes....Clean the rear media sensor. No .....Verify item (3).
	(3) Is the rear media sensor cable securely connected to the main board and the sensor?	Yes....Replace the rear media sensor. No .....Connect the cable securely.
The plotter displays “LOAD MEDIA!” when media has been loaded.	(1) Does the cam sensor plate block the cam sensor?	Yes....Check the cam sensor plate and attach it at the correct position. No .....Verify item (2).
	(2) Is the cam sensor cable securely connected to the main board and the sensor?	No .....Connect the cable securely. Yes....Replace the cam sensor board.
The plotter can’t recognize the Y direction of the media size.	(1) Is there any dust on the push roller sensor?	Yes....Clean the push roller sensor. No .....Verify item (2).
	(2) Is the push roller sensor flexible cable securely connected to each connector?	Yes....Replace the push roller sensor. No .....Connect the cable securely.
The plotter can’t recognize the X direction of the media size.	(1) Is there any dust on the front media sensor and the rear media sensor?	Yes....Clean the front media sensor and the rear media sensor. No .....Verify item (2).
	(2) Are the front media sensor and the rear media sensor cables securely connected to each connector?	No .....Connect the cables securely. Yes....Replace the sensor(s).
The media is fed at an angle.	(1) Are the push rollers worn down?	Yes....Replace the push roller(s). No .....Verify item (2).
	(2) Is there anything on the drive roller?	Yes....Clean the drive roller with a brush. No .....Verify item (3).
	(3) Do the push rollers have the correct pressure?	No .....Replace the push roller spring(s). Yes....Verify item (4).
	(4) Is the drive roller worn down?	Yes....Replace the drive roller. No .....Verify item (5).
	(5) Is the drive roller attached correctly?	Yes....Replace the bearing of the drive roller. No .....Attach the drive roller correctly.

9.3 Cutting Operations

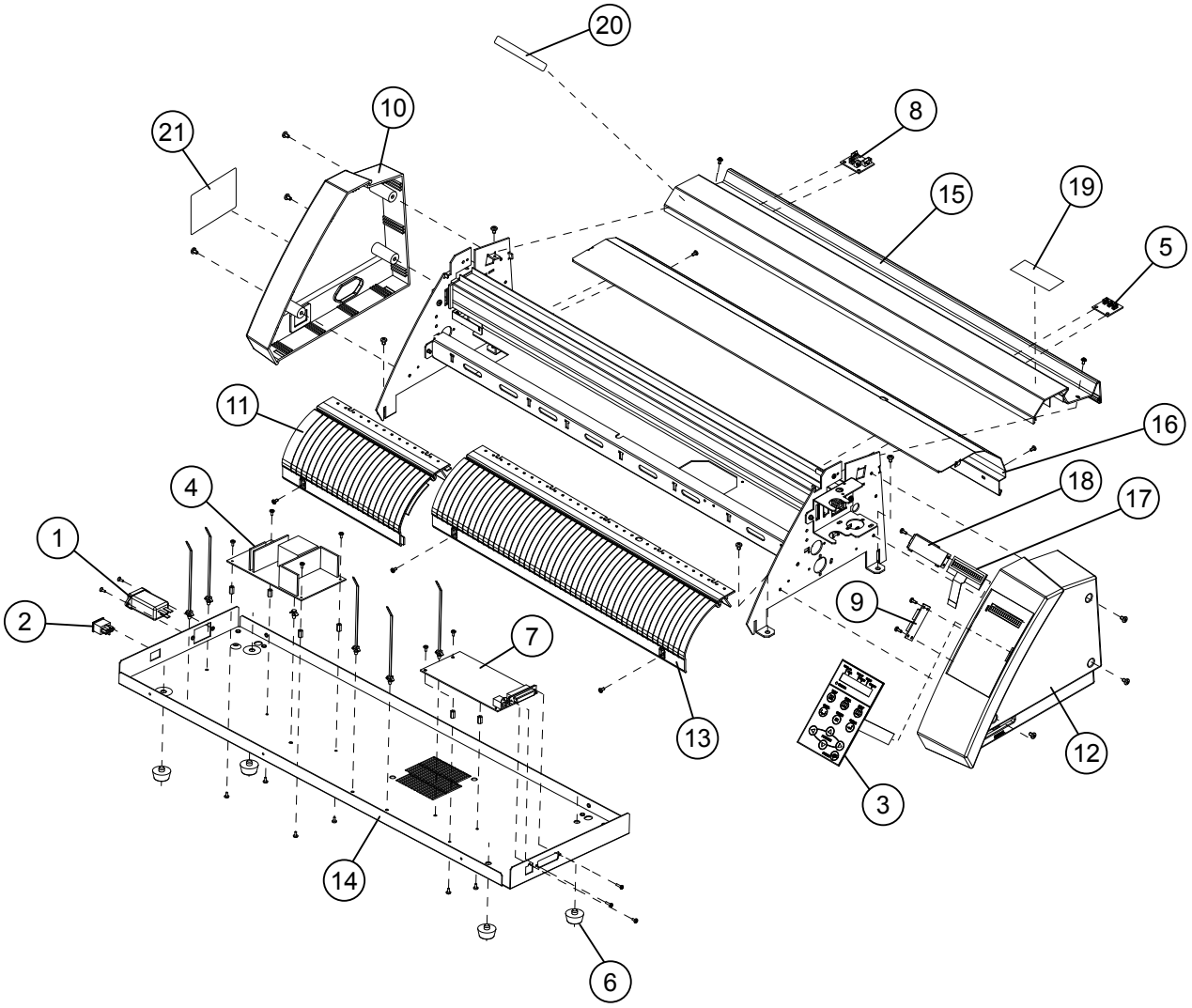
Symptom	Verification item	Solution
The cut line is crooked.	(1) Does the blade turn well in the blade holder?	No .....Replace the blade holder. Yes....Verify item (2).
	(2) Do the X and Y drive motor belts have the correct tension?	No .....Adjust the tension. Yes....Verify item (3).
	(3) Is the Y belt attached correctly?	No .....Attach it correctly. Yes....Verify item (4).
	(4) Is the pen block attached correctly?	No .....Attach it correctly. Yes....Verify item (5).
	(5) Is the pen arm shaky?	Yes....Adjust the pen arm shaft slider tension.
The blade skips and does not completely cut lines that should be solid.	(1) The blade is extended too far.	Adjust the blade length.
	(2) The cutting SPEED is too high.	Adjust the SPEED setting.
	(3) Verify the pen force.	Adjust the pen force.
	(4) Verify the pen block height.	Adjust the pen block height.

10. PARTS LIST

10.1 Outer Casing

No.	Part No.	Description	Q'ty	Remarks
1	500051515	Inlet	1	ID-0322-H
2	508000025	Power Switch	1	JWA2120-0033
3	682132080	Control Panel Membrane Switch Panel	1	PN5043-08
4	682132200	Power Supply Unit	1	SNP-Y119
5	792130712	Fan Relay Board	1	PN5043-12, CE5000-120
6	363126121	Foot	4	TM-127-4
7	792130700	Main Board CE5000-60/120	1	CE5000-60/120
	792130713	Main Board CE5000-40CRP	1	CE5000-40CRP
	792130715	Main Board CE5000-120AP	1	CE5000-120AP
	792130714	Main Board 9e60p	1	9e60p
8	792130711	X Motor Relay Board	1	CE5000-120/120AP
9	792130706	Control Panel Relay Board	1	PN5043-04
10	621324001	Left Side Cover	1	
	621313151	Left Side Cover for 9e60p	1	9e60p
11	621230053	Front Guide 60	1	CE5000-60
	621230454	Front Guide 120 V2	1	CE5000-120
	621250114	Front Guide 120AP	1	CE5000-120AP
12	621324011	Right Side Cover	1	
	621313141	Right Side Cover for 9e60p	1	9e60p
13	621230043	Front Guide 40	1	CE5000-40,60
14	621351001	Main Chassis 120	1	CE5000-120/120AP
	621350000	Main Chassis 60	1	CE5000-60
	621360001	Main Chassis 40	1	CE3000-40
15	621354200	Center Cover CE5000-120	1	CE5000-120/120AP
	621354101	Center Cover CE5000-60	1	CE5000-60
	621313131	Center Cover for 9e60p	1	9e60p
	621364000	Center Cover CE5000-40	1	CE5000-40
16	621230468	Rear Guide 120/120AP	1	CE5000-120/120AP
	621230065	Rear Guide 60	1	CE5000-60
	621230225	Rear Guide 40	1	CE5000-40
17	562060004	LCD, RCM-2122R-B	1	
18	621354010	LCD Cover Bracket	1	
19	621114110	Caution Label	1	
20	621364101	Emblem CE5000-40	1	CE5000-40
	621354400	Emblem CE5000-60	1	CE5000-60
	621313230	Emblem for 9e60p	1	9e60p
	621354500	Emblem CE5000-120	1	CE5000-120
	621374300	Emblem CE5000-120AP	1	CE5000-120AP
21	621354410	Model Label 60	1	CE5000-60
	621313240	Model Label for 9e60p	1	9e60p
	621354510	Model Label 120	1	CE5000-120
	621364110	Model Label ProS	1	CE5000-40
	621374310	Model Label 120AP		CE5000-120AP
22	421000001	Measure Tape	1	CE5000-120, 1 roll, 50 m
23	621250076	Front Media Guide	1	CE5000-120AP

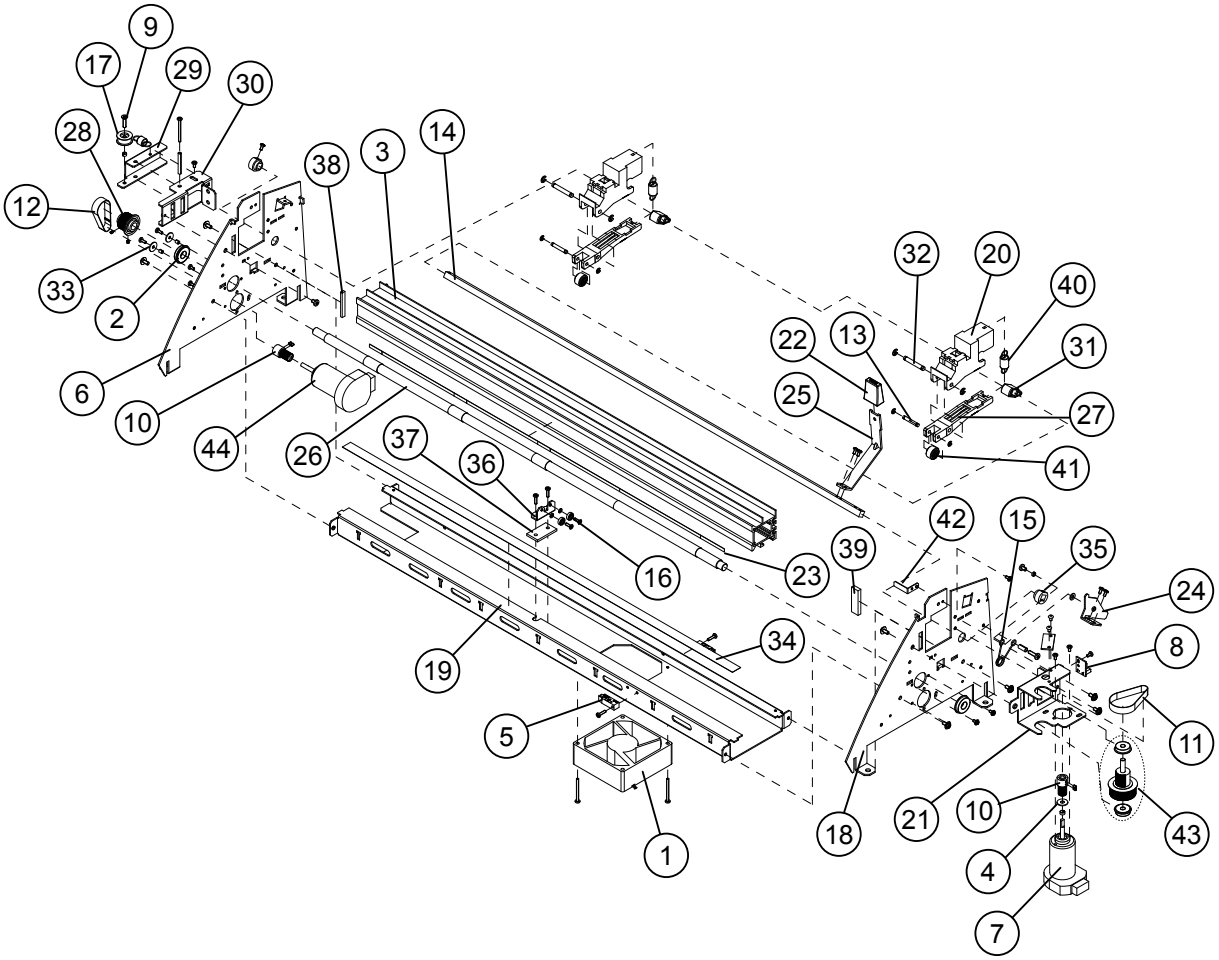
Outer Casing



10.2 Main Frame for CE5000-40/60

No.	Part No.	Description	Q'ty	Remarks
1	682900551	Vacuum Fan, KLDC24Z4-913A	1	CE5000-40,60
2	314690020	Bearing, 6900ZZNXR	2	
3	621113040	Y Rail 60	1	CE5000-60
	621233210	Y Rail 40	1	CE5000-40
4	621113141	Pulley Flange	1	
5	561080004	Media Sensor, PS117ED1	2	
6	621350011	Left Side Plate	1	
7	792130704	Y Motor	1	Y Motor for CE5000-40/60/120/120AP
8	792130709	Cam Sensor Board	1	PN5043-07
9	380206731	Spring	1	DE-673
10	010012022	Y Motor Pulley	1	
11	378410011	Y Drive Belt	1	100TN15-5W,CE5000-40,60
12	378408211	X Drive Belt	1	82TN15-5W,CE5000-40,60
13	092002041	Push Roller Shaft	2	CE5000-40,60
14	621230090	Cam Shaft 60	1	CE5000-60
	621230240	Cam Shaft 40	1	CE5000-40
15	095000040	Cam Shaft Spring	1	
16	309011003	Bearing, 10SRF41Z	2	CE5000-40,60
17	035032260	Tension Pulley	1	CE5000-40,60
18	621350021	Right Side Plate	1	CE5000-40,60,120/120AP
19	621350030	Vacuum Base 60	1	CE5000-60
	621360010	Vacuum Base 40	1	CE5000-40
20	621112111	Push Roller Arm Base	2	CE5000-40,60
21	621350301	Y Drive Bracket	1	
22	621234222	Cam Lever Cap	1	
23	621234630	Push Roller Position Label 23	3	CE5000-60
	621234640	Push Roller Position Label 148	1	CE5000-60
	621234710	Push Roller Position Label 40	1	CE5000-40
24	621230133	Cam Sensor Plate	1	
25	621230123	Cam Lever	1	
26	621232000	Drive Roller 60	1	CE5000-60
	621232100	Drive Roller 40	1	CE5000-40
27	621112100	Push Roller Arm	2	CE5000-40,60
28	621232012	X Drive Pulley	1	
29	621233431	Y Tension Bracket	1	
30	621233423	Y Tension Arm	1	
31	621230111	Cam	2	CE5000-40,60
32	621112120	Push Roller Arm Shaft	2	CE5000-40,60
33	621112021	Bearing Stopper	2	
34	621350041	Cutting Mat CE5000-60	1	CE5000-60
	621360021	Cutting Mat 40	1	CE5000-40
35	621230101	Cam Shaft Bush	2	
36	621112011	Drive Roller Holder	1	CE5000-40,60
37	621112040	Rubber Spacer	1	CE5000-40,60
38	621230140	Left Slider Stopper	1	
39	621230150	Right Slider Stopper	1	
40	621112140	Push Roller Spring	2	DE-645
41	095002122	Push Roller	2	CE5000-40,60
42	621230081	Home Sensor Bracket	1	
43	791230710	Y Drive Pulley Assy	1	
44	792130704	X Motor for CE5000-40/60	1	

Main Frame

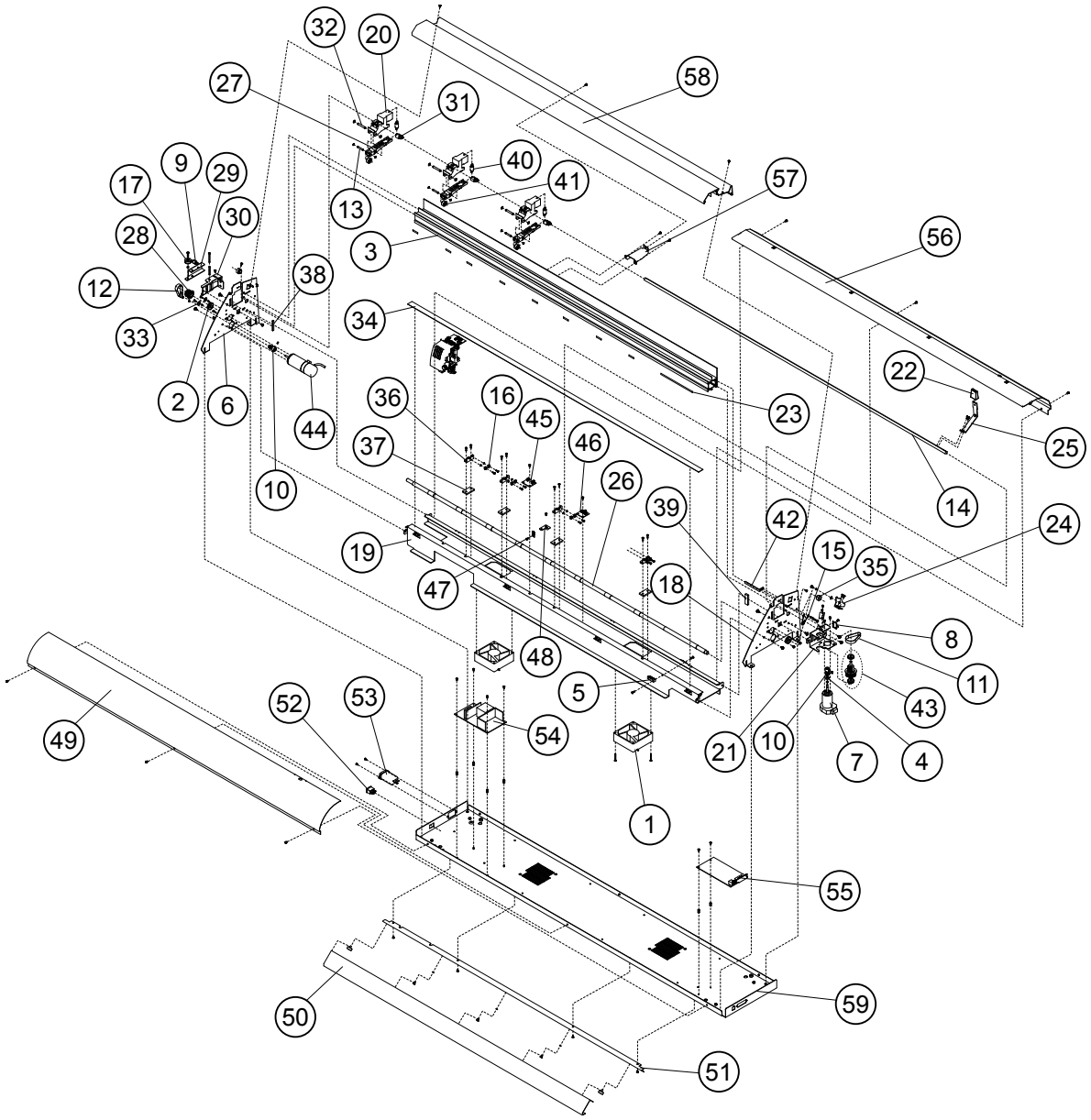

9
17
29
30
28
38
3
14
12
33
2
6
10
44
26
37
36
16
23
32
20
40
22
13
31
25
27
41
42
15
35
39
24
34
8
19
5
1
18
21
10
43
4
7
11

10.3 Main Frame CE5000-120/120AP

No.	Part No.	Description	Q'ty	Remarks
1	682900551	Vacuum Fan, KLDC24Z4-913A	2	CE5000-120/120AP
2	314690020	Bearing, 6900ZZNXR	2	
3	621233310	Y Rail 120	1	CE5000-120/120AP
4	621113141	Pulley Flange	1	
5	561080004	Media Sensor, PS117ED1	2	
6	621350011	Left Side Plate	1	
7	792130704	Y Motor	1	Y Motor for CE5000-40/60/120/120AP
8	792130709	Cam Sensor Board	1	PN5043-07
9	380206731	Spring	1	DE-673
10	010012022	Y Motor Pulley	1	
11	379500004	Y Drive Belt	1	100TN15-10W,CE5000-120/120AP
12	375311002	X Drive Belt	1	82TN15-10.0W,CE5000-120/120AP
13	092002041	Push Roller Shaft	3	CE5000-120/120AP
14	621230380	Cam Shaft 120	1	CE5000-120/120AP
15	095000040	Cam Shaft Spring	1	
16	309011003	Bearing, 10SRF41Z	6	CE5000-120
	309011003	Bearing, 10SRF41Z	8	CE5000-120AP
17	621153211	Tension Pulley	1	CE5000-120/120AP
18	621350021	Right Side Plate	1	
19	621351010	Vacuum Base 120	1	CE5000-120
	621370011	Vacuum Base 120AP	1	CE5000-120AP
20	621112111	Push Roller Arm Base	3	CE5000-120/120AP
21	621350301	Y Drive Bracket	1	
22	621234222	Cam Lever Cap	1	
23	621234630	Push Roller Position Label 23	8	CE5000-120/120AP, Right side
	621234640	Push Roller Position Label 148	1	CE5000-120/120AP, Left side
24	621230133	Cam Sensor Plate	1	
25	621230123	Cam Lever	1	
26	621232202	Drive Roller 120	1	CE5000-120/120AP
27	621112100	Push Roller Arm	3	CE5000-120/120AP
28	621232012	X Drive Pulley	1	
29	621233431	Y Tension Bracket	1	
30	621233423	Y Tension Arm	1	
31	621230111	Cam	3	CE5000-120/120AP
32	621112120	Push Roller Arm Shaft	3	CE5000-120/120AP
33	621112021	Bearing Stopper	2	
34	621351051	Cutting Mat CE5000-120	1	CE5000-120
	621250520	Cutting Mat CE5000-120AP	1	CE5000-120AP
35	621230101	Cam Shaft Bush	2	
36	621112011	Drive Roller Holder	3	CE5000-120/120AP
	621112011	Drive Roller Holder	4	CE5000-120A
37	621112040	Rubber Spacer	3	CE5000-120
	621252110	Rubber Spacer 40	4	CE5000-120AP
38	621230140	Left Slider Stopper	1	
39	621230150	Right Slider Stopper	1	
40	621112140	Push Roller Spring	2	DE-645
	621153151	Center Push Roller Spring	1	DE-646, CE5000-120
	380265281	Center Push Roller Spring 120AP		DE-528, CE50000-120AP
41	095002122	Push Roller	2	CE5000-40,60
	095002122	Push Roller	3	CE5000-120/120AP
42	621230081	Home Sensor Bracket	1	CE5000-120
	621253111	Home Sensor Bracket AP	1	CE5000-120AP
43	791230710	Y Drive Pulley Assy	1	
44	792130705	X Motor for CE5000-120	1	
45	792130711	X Motor Relay Board	1	CE5000-120/120AP
46	792130712	Fan Relay Board	1	CE5000-120/120AP
47	035132220	Brush	1	
48	621230391	Brush Bracket	1	
49	621250114	Front Guide 120AP	1	CE5000-120AP
	621230454	Front Guide 120 V2	1	CE5000-120
50	621250076	Front Media Guide	1	CE5000-120AP
51	621250083	Front Media Guide Base	1	CE5000-120AP
52	508000025	Power Switch	1	JWA2120-0033
53	500051515	Inlet	1	ID-0322-H
54	682132200	Power Supply Unit	1	SNP-Y119
55	792130700	Main Board CE5000-60/120	1	CE5000-60/120
	792130715	Main Board CE5000-120AP	1	CE5000-120AP

No.	Part No.	Description	Q'ty	Remarks
56	621230468	Rear Guide 120/120AP	1	CE5000-120/120AP
57	621234411	Center Cover Bracket for CE5000-120	1	
58	621354200	Center Cover CE5000-120	1	CE5000-120/120AP
59	621351001	Main Chassis 120	1	CE5000-120/120AP
60	421000001	Measure Tape	1	CE5000-120, 1 roll, 50 m

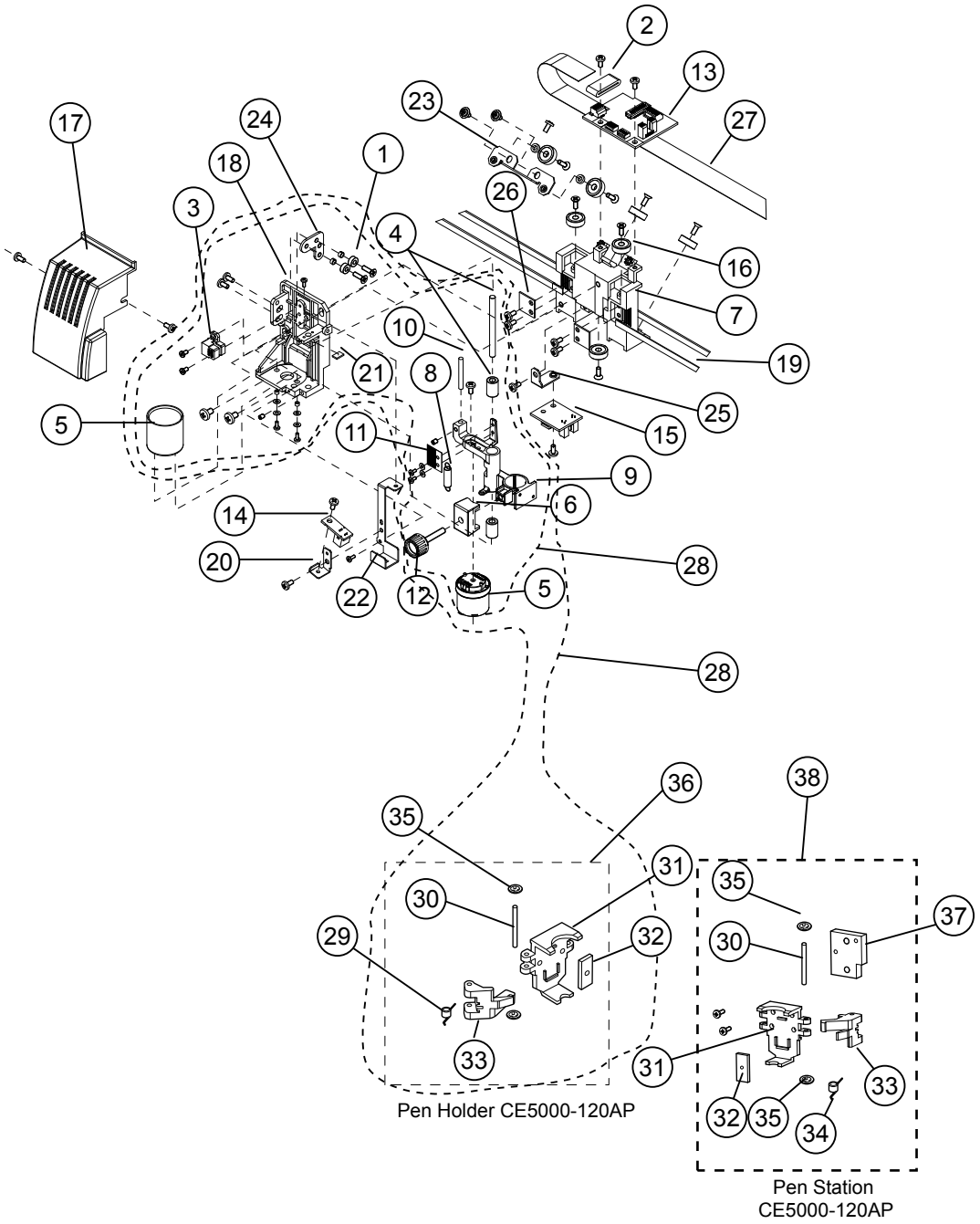
Main Frame for CE5000-120/120AP



10.4 Pen Block

No.	Part No.	Description	Q'ty	Remarks
1	310068320	Bearing Roller	2	683ZZMC3PS2S
2	562510001	Core	1	FPC-25-12
3	791230709	Encoder Sensor Assembly	1	CE5000-120/120AP
4	617363321	Bush LB4YC Assembly	1	Bush & Shaft
5	682132520	Moving Coil PM805 with Yoke	1	
6	621263282	Cutter Pen Holder	1	
7	621113000	Y Slider	1	
8	380205551	Pen Arm Spring E-555	1	
	380205381	Pen Arm Spring E-538	1	CE5000-120AP
9	621323500	Pen Arm Holder	1	
10	617363390	Guide Shaft	1	
11	621333200	Pen Encoder Strip	1	CE5000-120/AP
12	621113591	Thumb Screw L10	1	
13	792130707	Y Relay Board	1	PN5043-05
14	792130710	Auto Registration Mark Sensor	1	PN5043-09
15	792130708	Push Roller Sensor Board	1	PN5043-06
16	095013010	Bearing BB13	7	
17	621234233	Pen Block Cover	1	
18	621113500	Moving Coil Base	1	
19	621233201	Y Belt 40	1	CE5000-40
	621113022	Y Belt 60	1	CE5000-60
	621153202	Y Belt 120	1	CE5000-120/AP
20	621239813	Auto Registration Mark Sensor Bracket	1	Except CE5000-120AP
21	621113520	Rubber Plate	1	
	621253130	Rubber Plate AP	1	CE5000-120AP
22	621239805	Auto Registration Mark Sensor Bracket A	1	Except CE5000-120AP
23	621233000	Bearing Roller Tension Plate	1	
24	621113531	Bearing Roller Base Bracket	1	
25	621113051	Push Roller Sensor Bracket	1	
25	621113031	Y Belt Stopper	2	
27	692132330	Y Flexible Cable, FPC504303	1	CE5000-40,60
	692132340	Y Flexible Cable, FPC504304	1	CE5000-120/AP
28	792130702	Pen Block Assembly	1	CE5000-40,60
	792130703	Pen Block Assembly 120	1	CE5000-120
	792130716	Pen Block Assembly 120AP	1	CE5000-120AP
29	622192091	Arm Spring 2	1	CE5000-120AP
30	337120250	Shaft Pin D2L25H7	2	CE5000-120AP
31	622192060	Pen Holder AP	2	CE5000-120AP
32	053203420	Magnet	2	CE5000-120AP
33	622192070	Lock Arm	2	CE5000-120AP
34	622192081	Arm Spring 1	1	CE5000-120AP
35	333302001	Stopper ring CS 2 mm	4	CE5000-120AP
36	792219702	Pen Holder Assy 4200	1	CE5000-120AP
37	621163200	Pen Holder Spacer	1	CE5000-120AP
38	792219703	Pen Station Assy 4200	1	CE3000-120AP

Pen Block



10.5 Wiring Harness

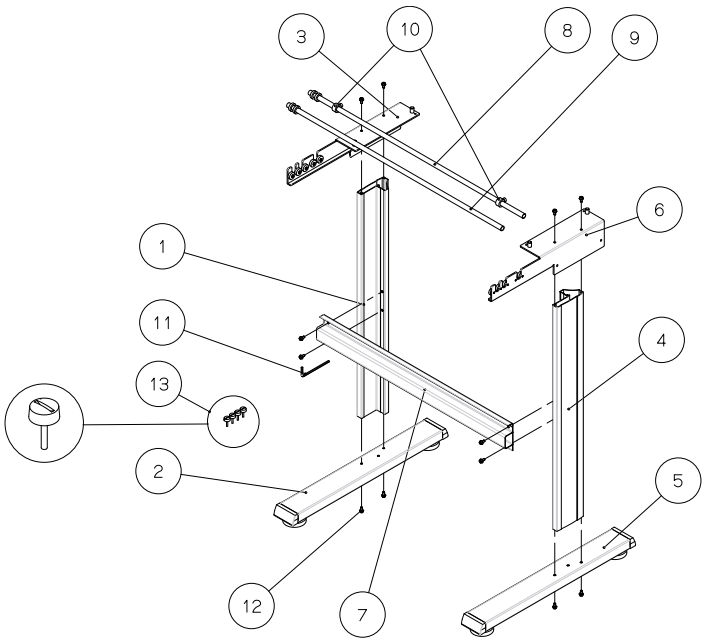
No.	Part No.	Description	Q'ty	Remarks
1	692132011	CA504301A (Power Supply to Power Switch)	1	
2	692132021	CA504302A (Power Supply to Main Board)	1	CE5000-40/60
	692132101	CA504310A (Power Supply to Main Board)	1	CE5000-120
3	692132031	CA504303A (Media Sensor to Main Board)	2	
4	692132041	CA504304A (Inlet to Power Switch, Brown)	1	
5	692132051	CA504305A (Inlet to Power Switch, Blue)	1	
6	692132061	CA504306A (Inlet to FG)	1	
7	692132081	CA504308A (Auto Registration Mark Sensor to Y Relay)	1	
8	692132330	FPC504303 (Y Flexible Cable 40/60)	1	CE5000-40/60
	692132340	FPC504304 (Y Flexible Cable 120)	1	CE5000-120
9	692132350	FPC504305 (Cam Sensor Flexible Cable)	1	
10	692132360	FPC504306 (Push Roller Sensor Flexible Cable)	1	
11	692132320	FPC504302 (Control Panel Flexible Cable)	1	
12	692132111	CA504311A (X Motor Extension Cable)	1	CE5000-120
13	692132121	CA504312A (X Motor Encoder Extension Cable)	1	CE5000-120
14	692132131	CA504313A (Fan Extension Cable)	1	CE5000-120
15	682132100	PN5043-10 (Pen Encoder Flexible Cable)	1	CE5000-120

10.6 Stand (CE5000-60, CE5000-120, CE5000-120AP)

Stand CE5000-60 (ST0065)

No.	Part No.	Description	Q'ty	Remarks
1	621320210	Side Stay 60 (Right and Left)	2	CE5000-60
2	621320250	Right Foot 60	1	CE5000-60
3	621320230	Right Top Plate 60	1	CE5000-60
4	621239910	Side Stay 60 (Right and Left)		
5	621320260	Left Foot 60	1	CE5000-60
6	621320240	Left Top Plate 60	1	CE5000-60
7	621320220	Center Bar 60	1	CE5000-60
8	621320300	Stock Shaft 60	2	CE5000-60
9	621151241	Stock Shaft 60		
10	621320290	Stopper 60	2	CE5000-60
11	305811005	Hexagonal Wrench (M5)	1	
12	621320310	Hexagonal Bolts (M5L10Ni)	12	
13		Coin Screw	4	
14	621320270	End Cap 94	4	CE5000-60

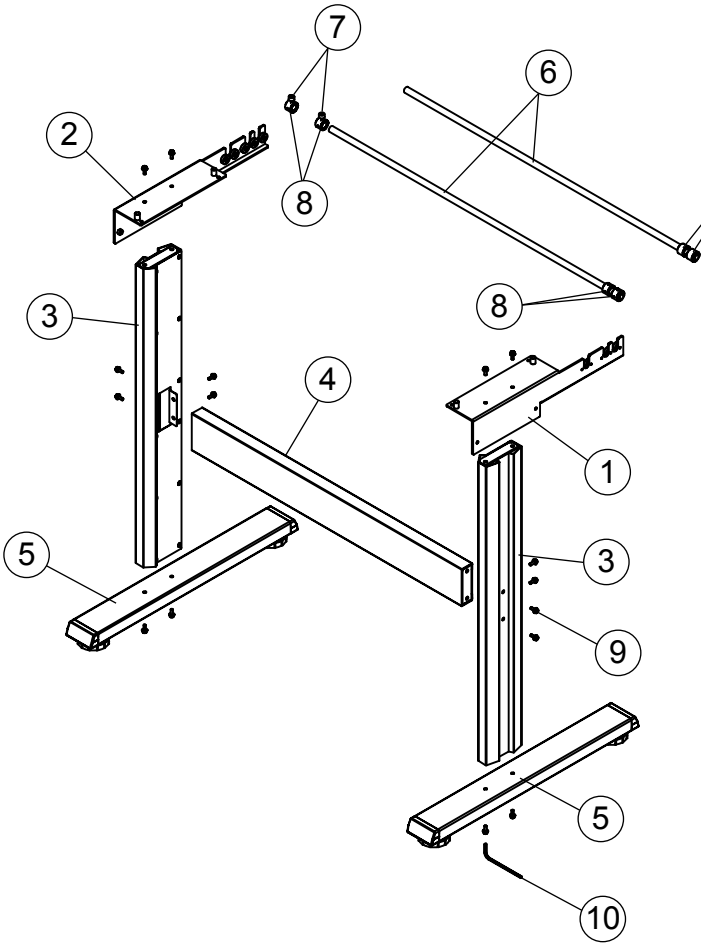
Stand CE5000-60 (ST0065)



Stand CE5000-60 (ST0068, Steel Stand)

No.	Part No.	Description	Q'ty	Remarks
1	621350090	Right Top Bracket	1	
2	621350080	Left Top Bracket	1	
3	621350220	Side Stay Assy	2	
4	621350260	Center Bar Assy	1	
5	621350120	Foot Assy	2	
6	621350180	Stock Shaft	2	
7		Coin Screw (M4L10)	2	
8	621350190	Stopper	2	
9		Hexagonal Bolts (M5L12)	16	
10		Hexagonal Wrench (M5)	1	
11	562500102	Coin Screw (M4L20)	4	

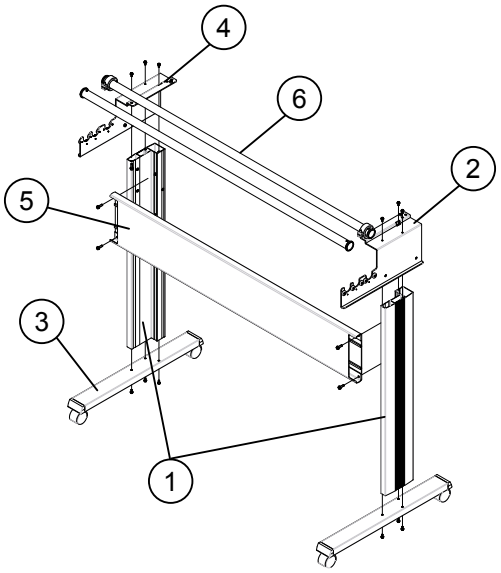
Stand CE5000-60 (ST0068)



Stand CE5000-120

No.	Part No.	Description	Q'ty	Remarks
1	621239410	Side Stay 120	2	
2	621239430	Right Top Plate 120	1	
3	621239450	Foot 120 Assembly	2	
4	621239440	Left Top Plate 120	1	
5	621330120	Center Bar 120	1	
6	621239190	Stock Shaft Assembly Set 120	1	
7		Hexagonal Bolts (M5L16)	24	
8		Hexagonal Bolts (M6L20)	4	

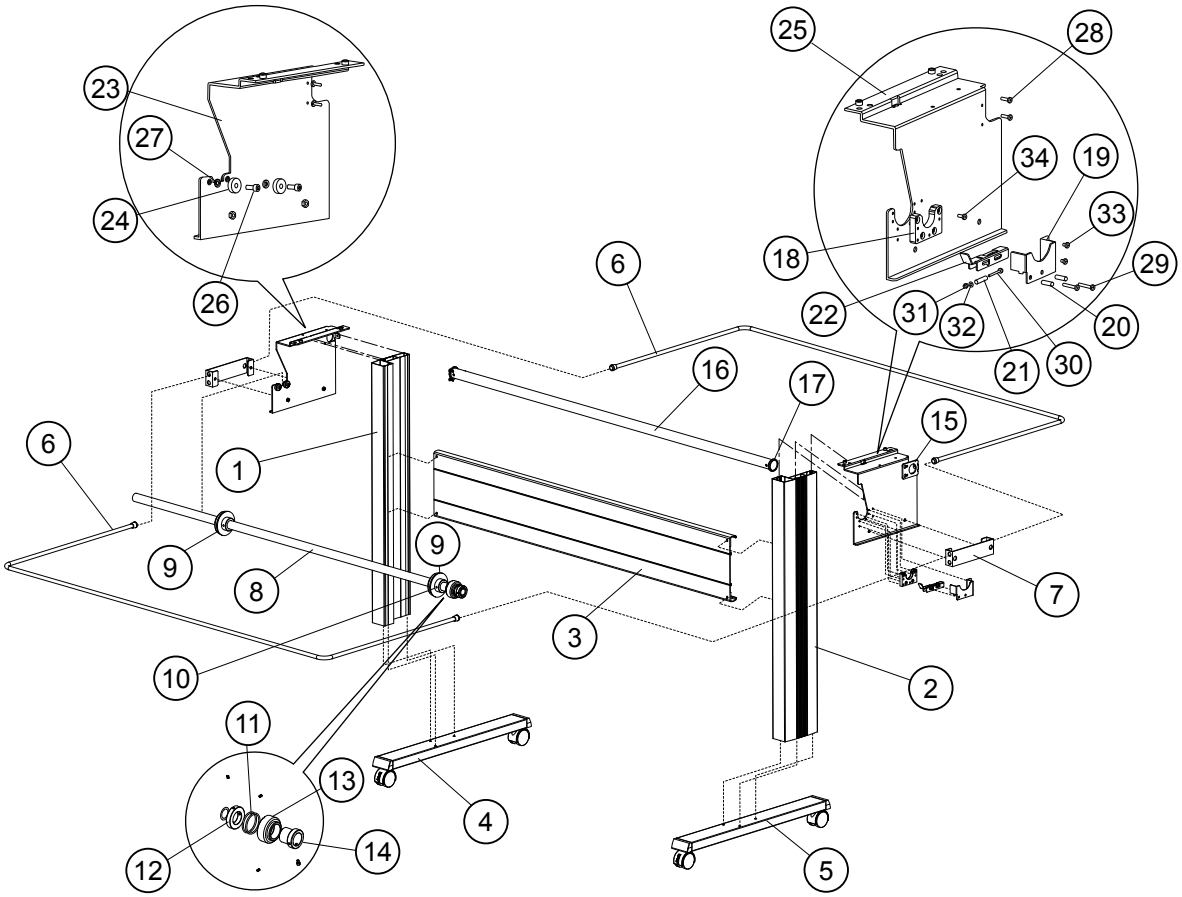
Stand CE5000-120



Stand CE5000-120AP

No.	Part No.	Description	Q'ty	Remarks
1	621231370	Left Side Stay 120AP	1	
2	621231380	Right Side Stay 120AP	1	
3	621151130	Center Bar 120	1	
4	621231170	Left Foot 120AP	1	
5	621231180	Right Foot 120AP	1	
6	621159730	BS Rear Pipe 120	2	
7	621159710	BS Bracket 120	2	
8	621161250	Stock Shaft 120AP	1	
9	619052391	2/3 Inch Stopper	2	
10	391906101	Coin Screw M6L10	1	
11	621259011	Spring, P-424 Ni	1	
12	621370210	Collar Base	1	
13	621370230	Press Block	1	
14	621370220	Collar 2	1	
15	621251152	Alignment Shaft Holder AP	2	
16	621231103	Shaft 120	1	
17	621231113	Shaft Cap	2	
18	621161133	100AP Shaft Holder	1	
19	621259050	AP Stopper Base	1	
20	392040180	Bush D4L18	2	
21	380101981	Spring, C-198	1	
22	621259070	AP Stopper Arm	1	
23	621251020	Left 120AP Holder Plate	1	
24	310063620	Bearing 636ZZ	2	
25	621251031	Right 120AP Holder Plate	1	
26		M6L16 Cap Screw	2	
27		Washer C6 D11.5	2	
28		M4L14 Binding Head Screw	4	
29		M4L25 Binding Head Screw	2	
30		M3L30 Binding Head Screw	1	
31		M3 Nut	1	
32		Washer C3 D8	1	
33		M4L6 Binding Head Screw	2	
34		M4L8 Binding Head Screw	4	
	621239720	Basket W	1	
	305811005	Hexagonal wrench (M5)	1	
	301001020	Hexagonal wrench (M6)	1	
	391650100	Hexagonal bolts (M5M5L10Ni)	12	
	391660200	Hexagonal bolts (M6L20Ni)	8	

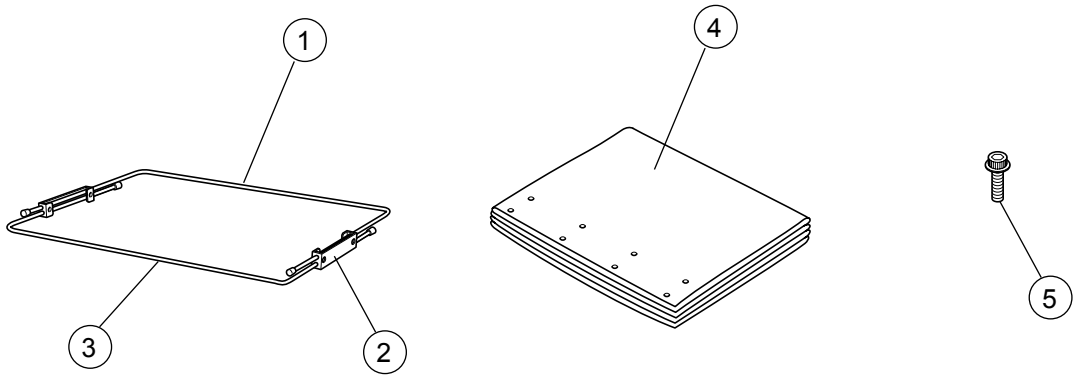
Stand CE5000-120AP



10.7 Option Basket

No.	Part No.	Description	Q'ty	Remarks
1	621339140	BS Pipe 120	2	CE5000-120
	621329520	BS Front Pipe 60	1	CE5000-60
2	621329510	BS Bracket	2	
3	621329530	BS Rear Pipe 60	1	CE5000-60
4	621339110	Basket 120	1	CE5000-120
	621329540	Basket W	1	CE5000-60
5	621320310	Hexagonal Screw (M5L10)	8	
6	621329560	End Cap	4	

Option Basket



10.8 Other Parts

Standard Accessories

No.	Part No.	Description	Q'ty	Remarks
1	772136940	Roll Stocker Set (L and R)	1	CE5000-40
2	972100400	Cutter Blade, CB09UA-1	1	
3	308002101	Cutter Knife, Q-100P	1	
4	971118901	Fiber Tip Pen, KF552-BK(1P)	1	
5	691330570	USB Cable, CBL1112ACL2-2.9M	1	CE5000-40/60/120
6	621369201	Quick Start Manual (English)	1	CE5000-40 (Craft ROBO Pro S)
	621359400	Quick Start Manual (English)	1	CE5000-60/120
	621313440	9e60p Setup Manual	1	9e60p
	621379201	Quick Start Manual (English)	1	CE5000-120AP
7	621359200	CE5000 CD-Manual and Software	1	CD-ROM for CE5000-60/120
	621369002	Craft ROBO Pro S CD-Manual and Software	1	CD-ROM for CE5000-40CRP
	621313411	9e60p CD-Manual and Software	1	CD-ROM for 9e60p
	621379001	CE50APCDM01M	1	CD-ROM for CE5000-120AP
8	621269332	Safety Manual, ANCUTG-UM-AM2	1	
	621313430	Safety Manual, SAFE-UM-AM2	1	9e60p

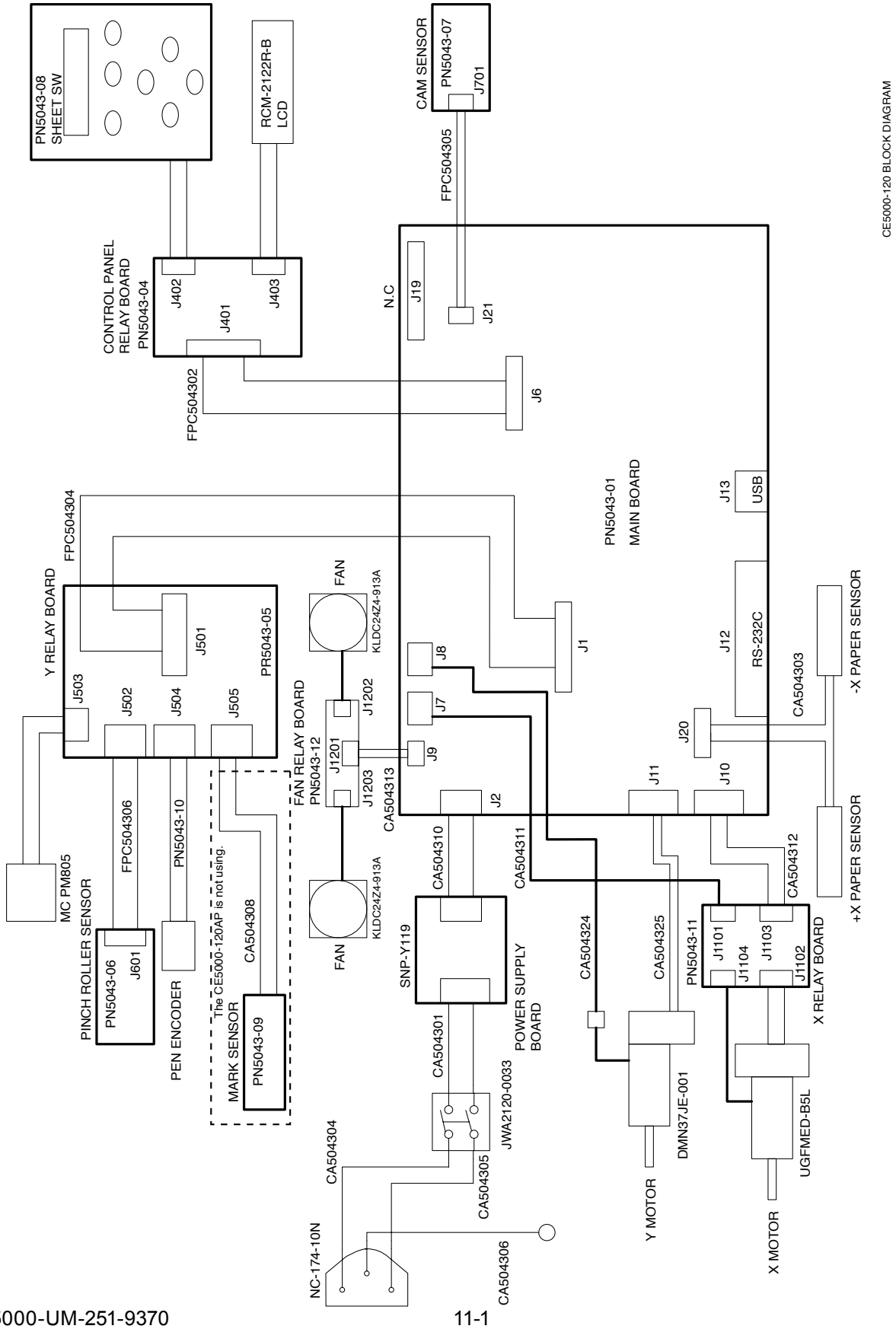
Packing Boxes

No.	Part No.	Description	Q'ty	Remarks
1	621369301	Packing Box for CE5000-40	1	
2	621329400	Packing Box for CE5000-60	1	
3	621359600	Packing Box for CE5000-120	1	
4	621329550	Packing Box for CE5000-60 Stand	1	
5	621330280	Packing Box for CE5000-120 Stand	1	
6	621313320	Packing Box for 9e60p	1	9e60p
7	621379401	Packing Box for CE5000-120AP	1	

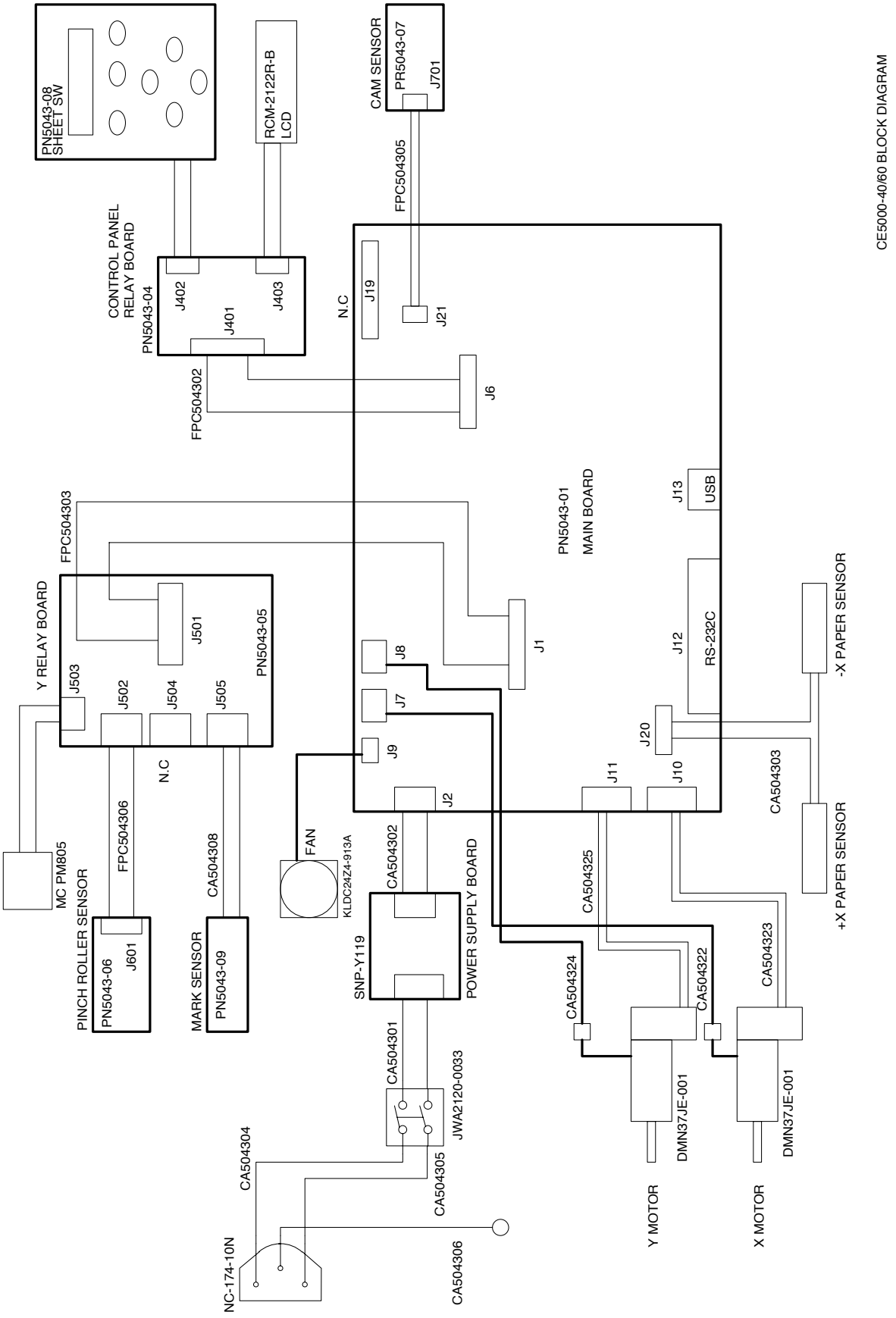
11. BLOCK DIAGRAMS AND CIRCUIT DIAGRAMS

11.1 Block Diagrams

11.1.1 Block Diagram for CE5000-120

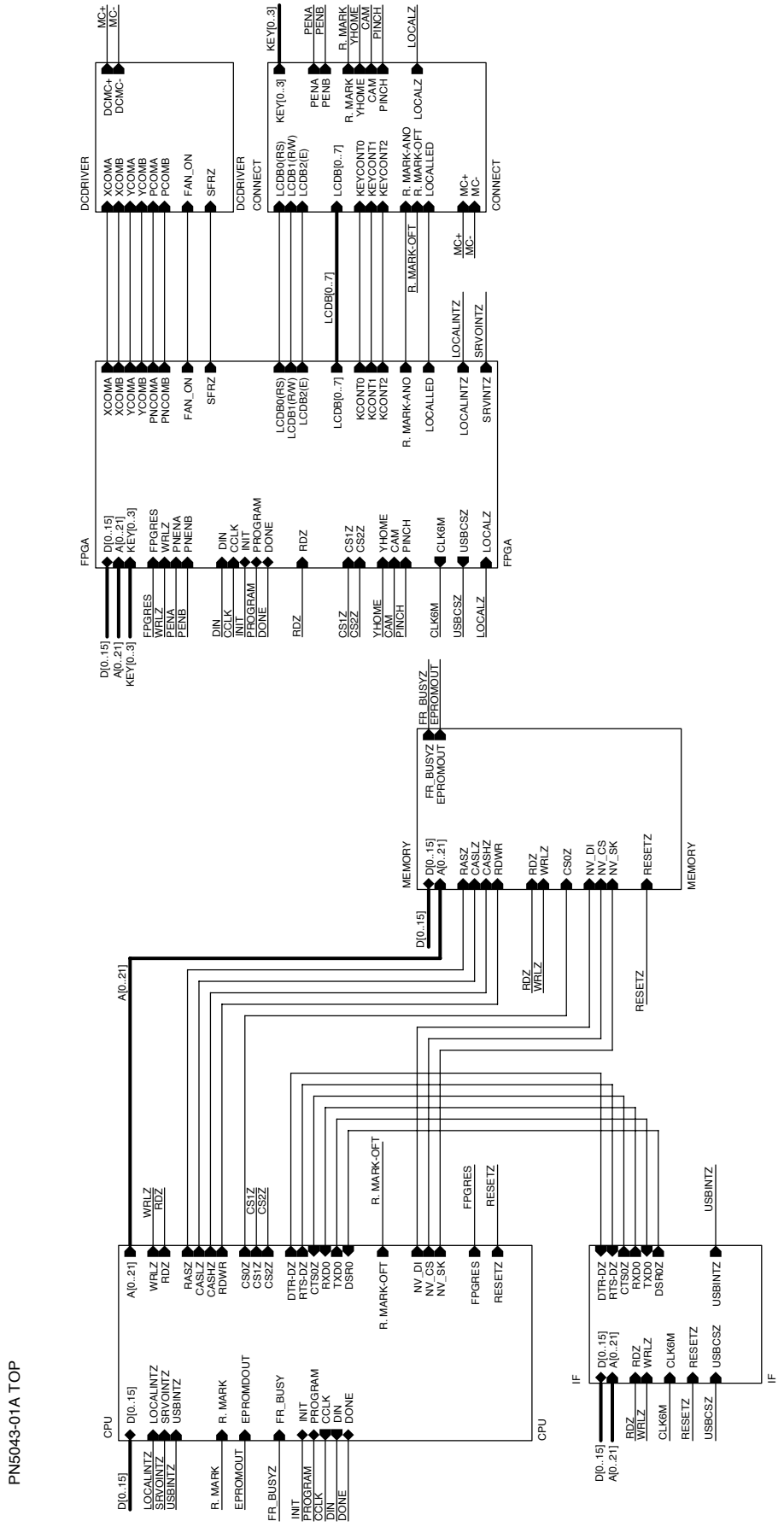


11.1.2 Block Diagram for CE5000-40/60

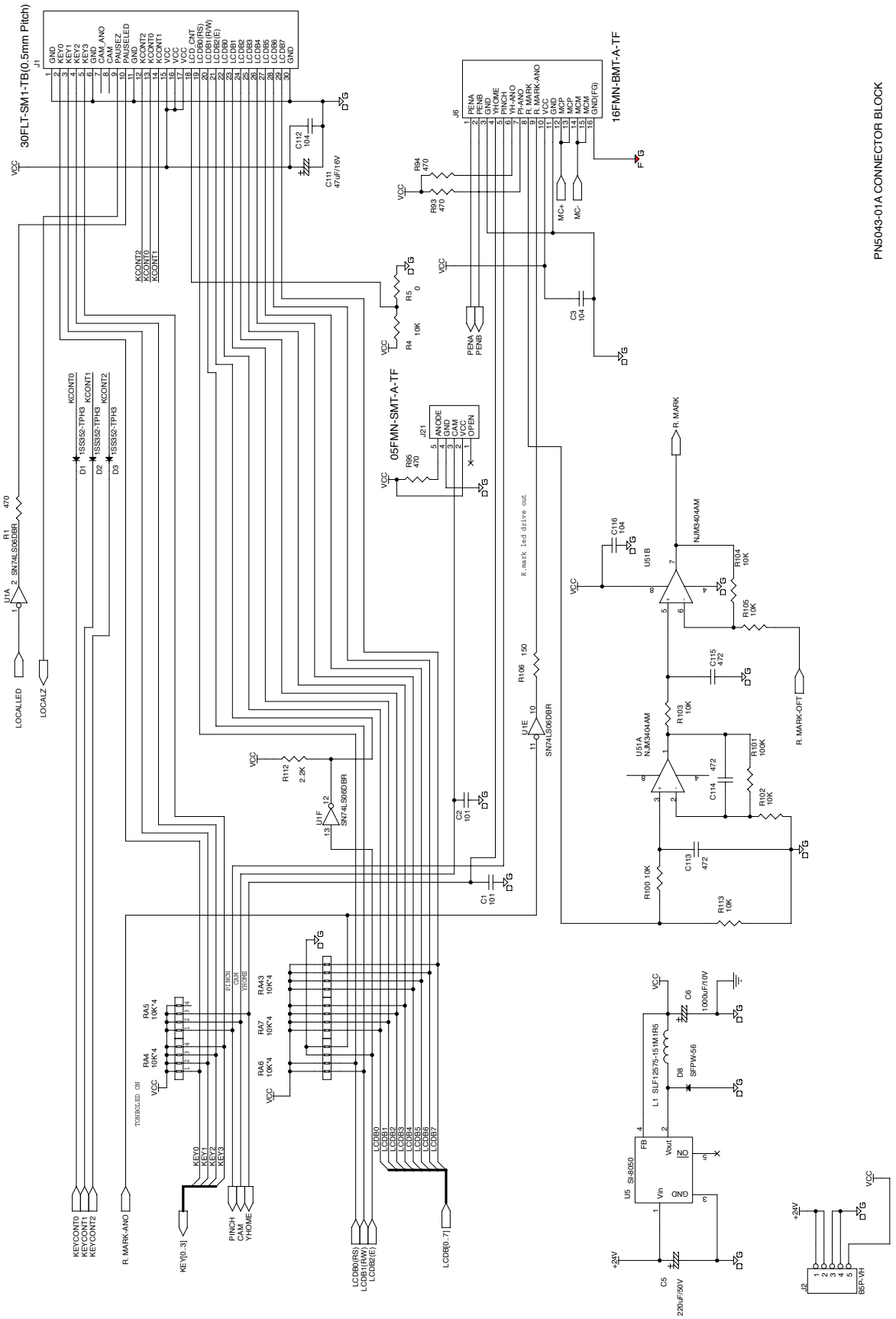


11.2 Circuit Diagrams

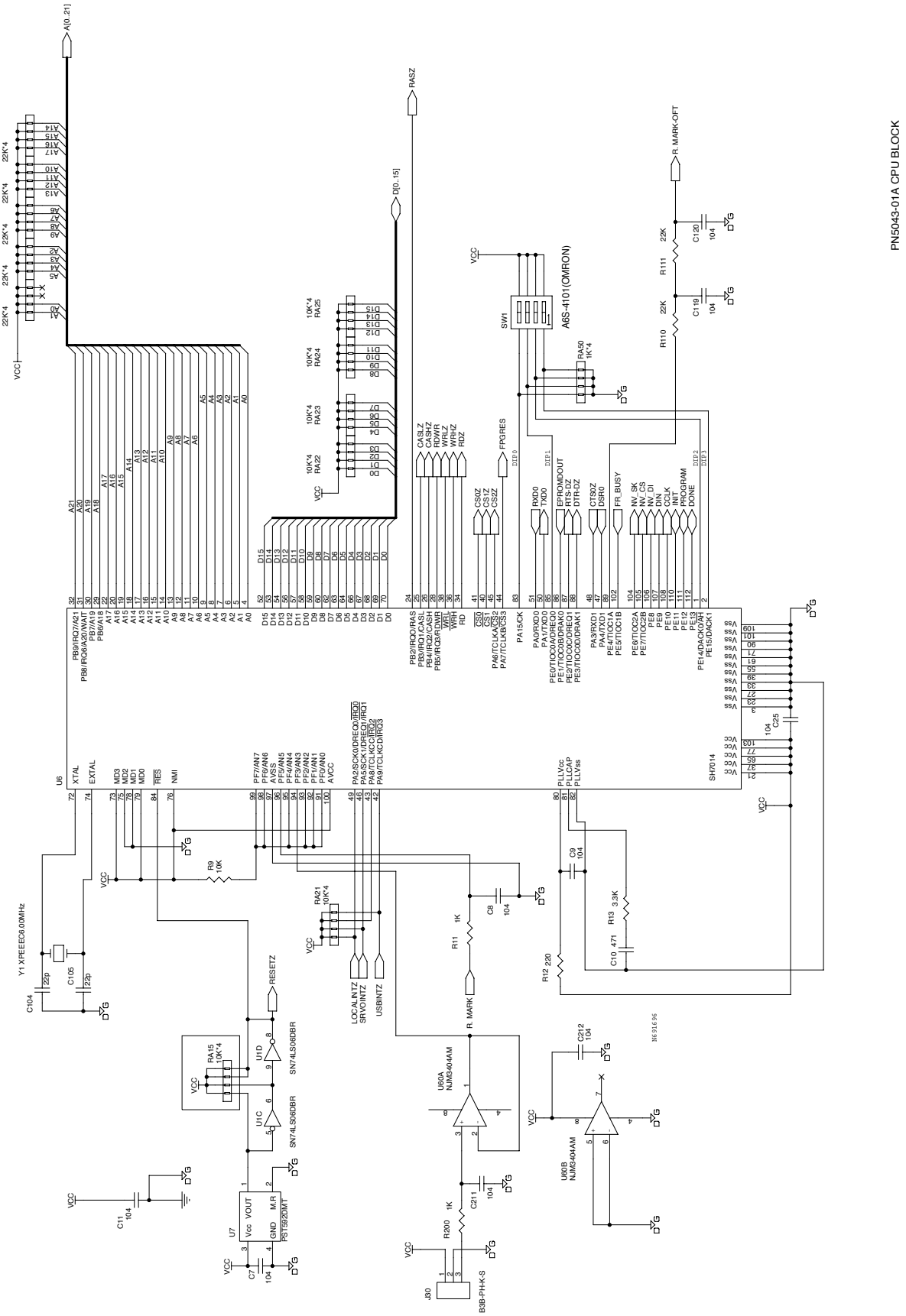
11.2.1 Main Board Top Section (PN5043-01A)



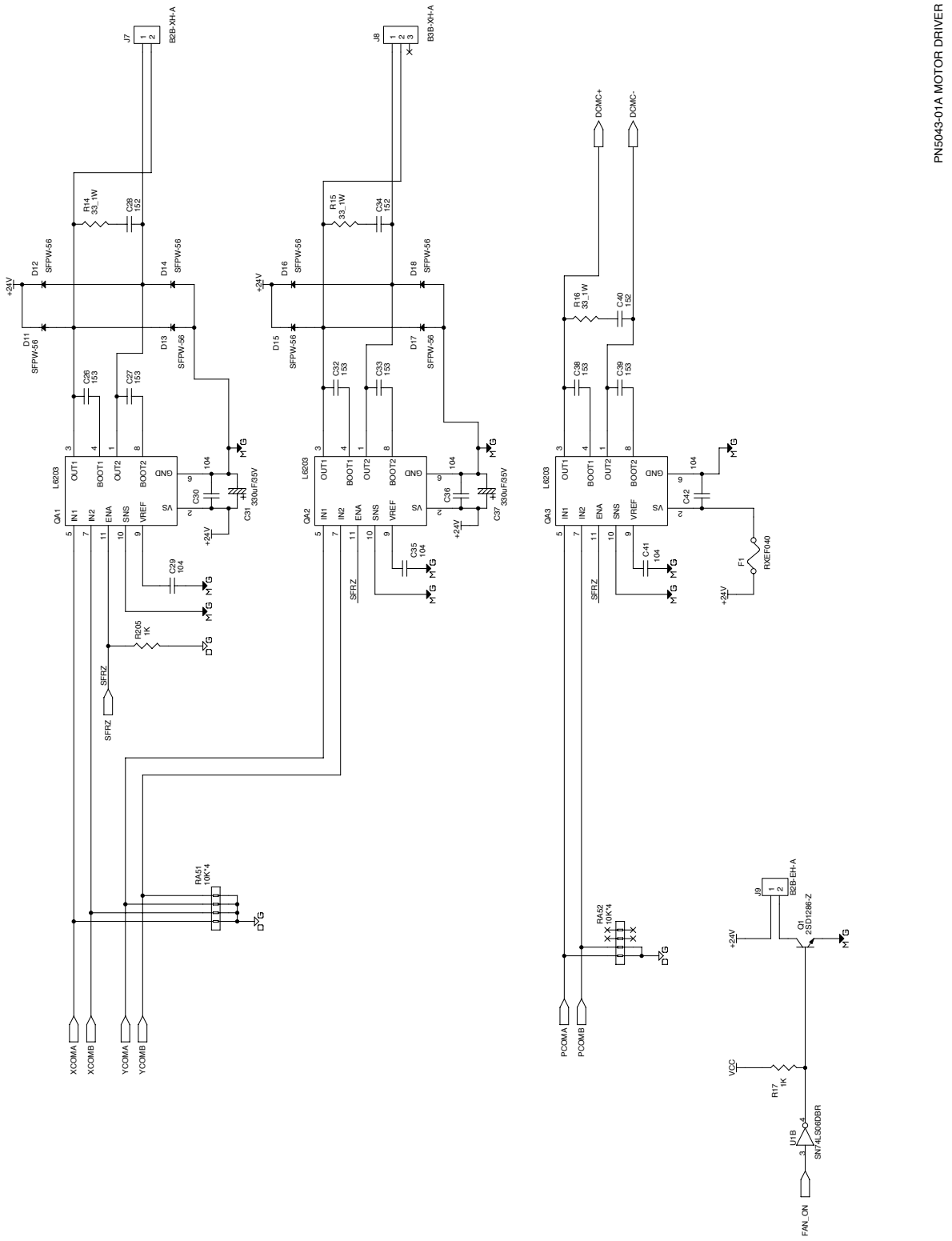
11.2.2 Main Board Connector Block Section (PN5043-01A)



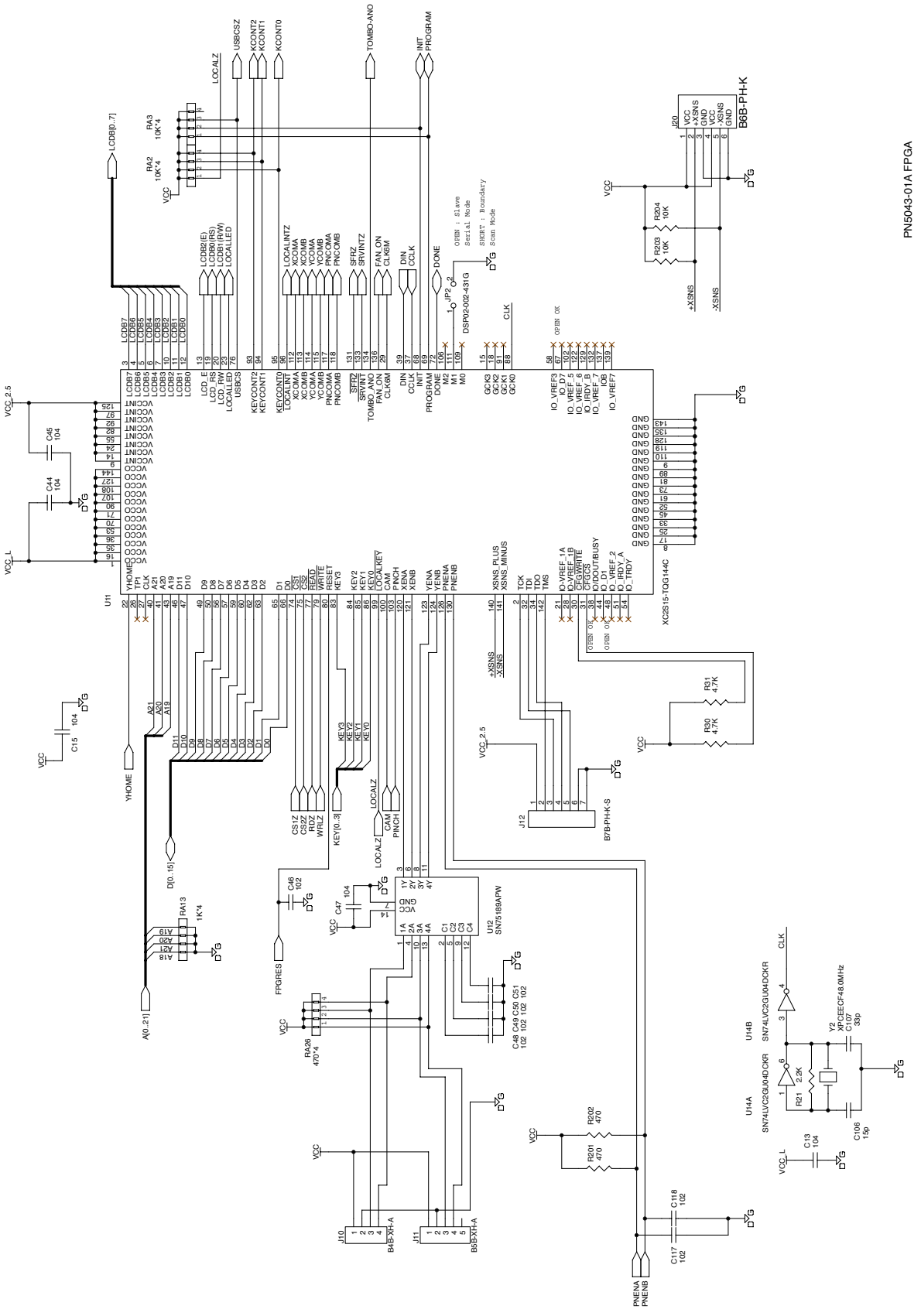
11.2.3 Main Board CPU Block Section (PN5043-01A)



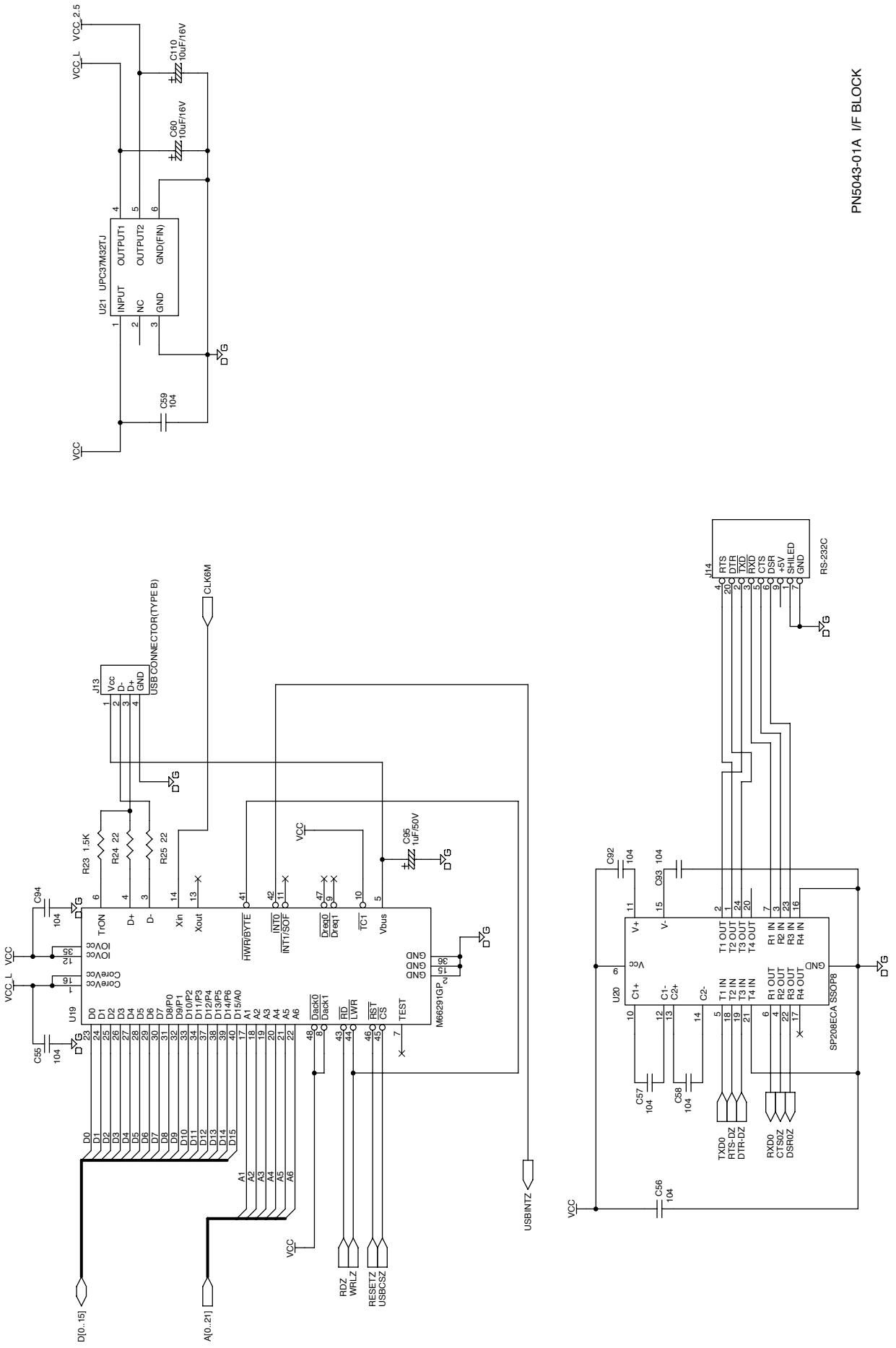
11.2.4 Main Board Motor Drive Section (PN5043-01A)



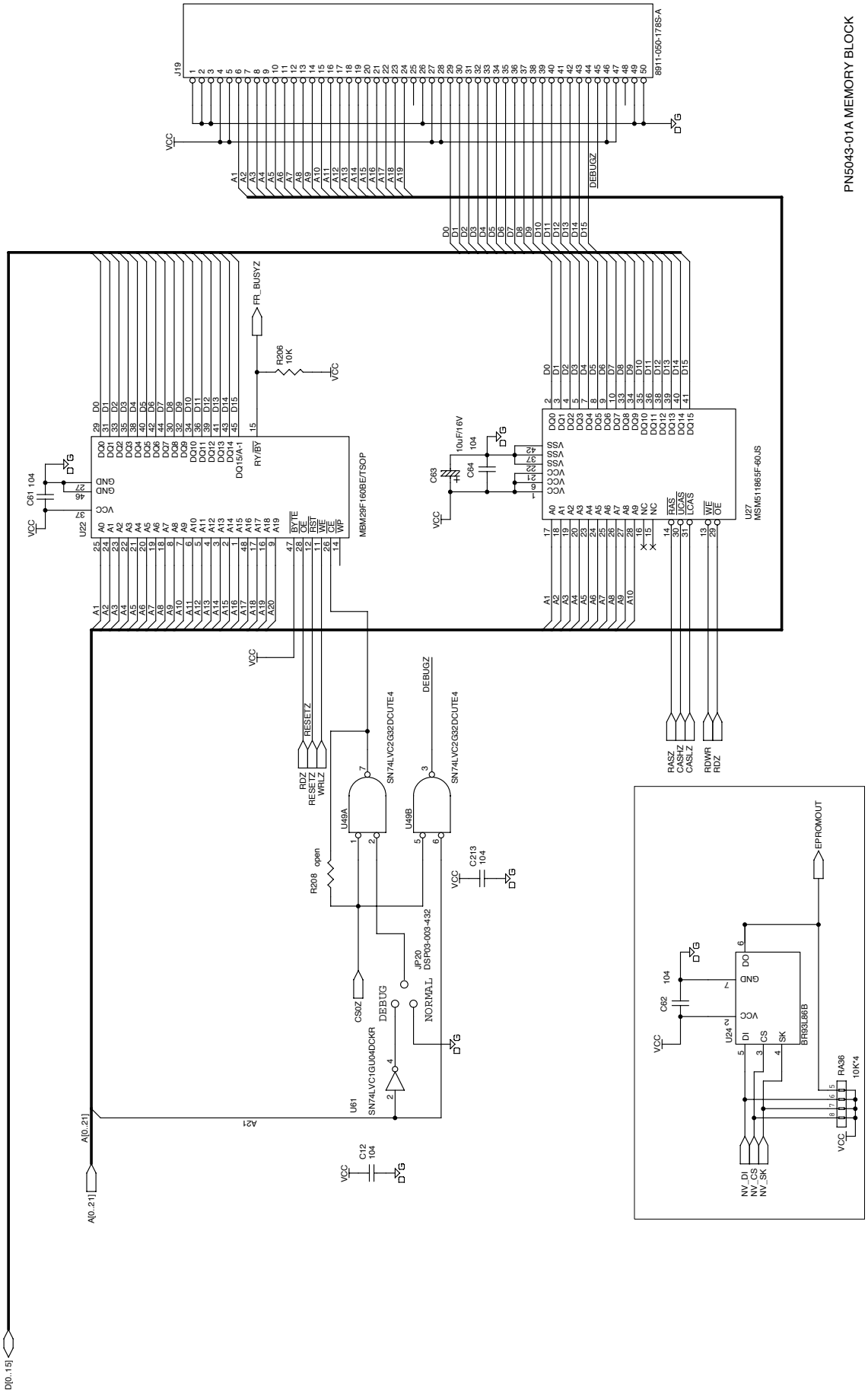
11.2.5 Main Board FPGA Section (PN5043-01A)



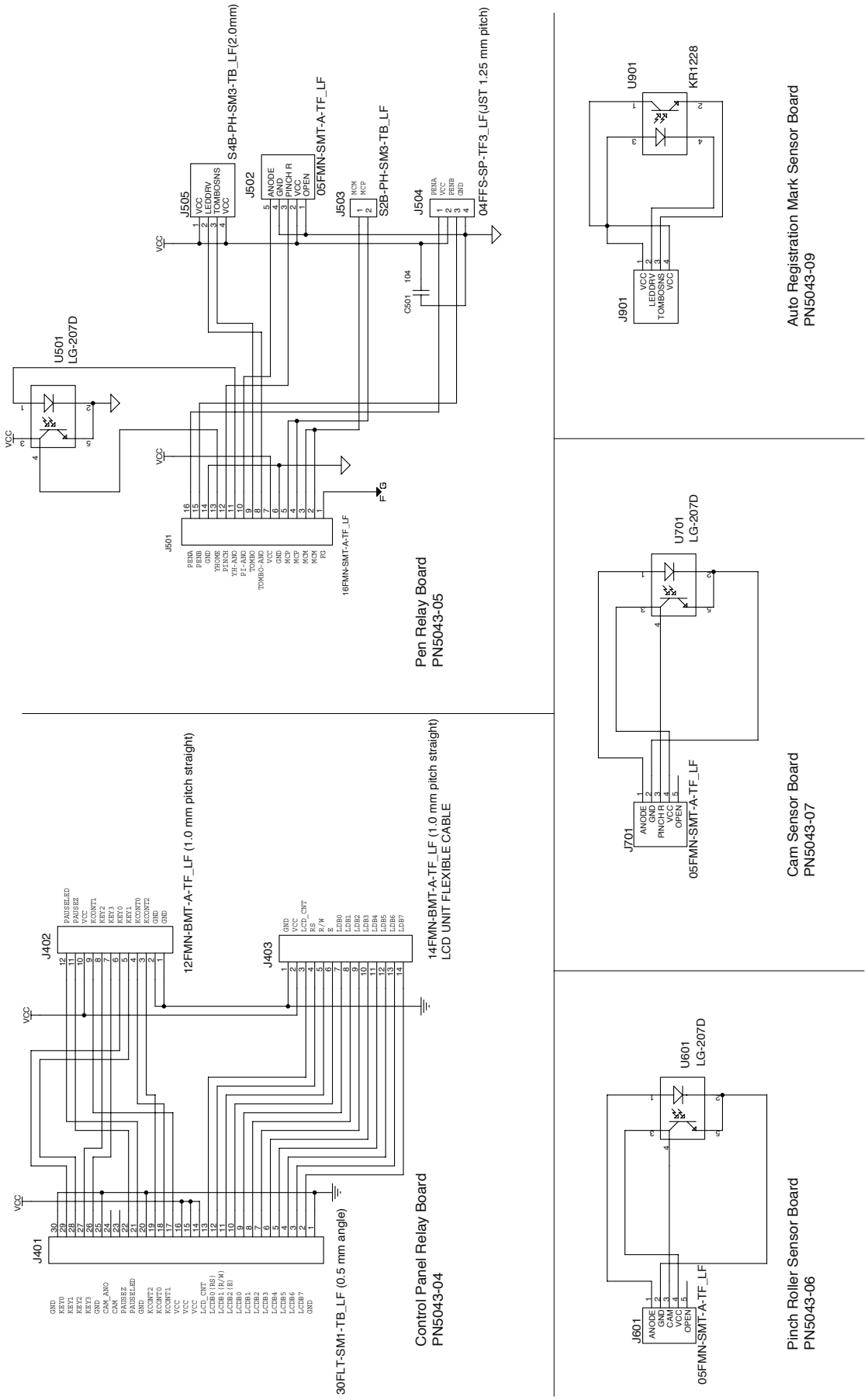
11.2.6 Main Board Interface Section (PN5043-01A)



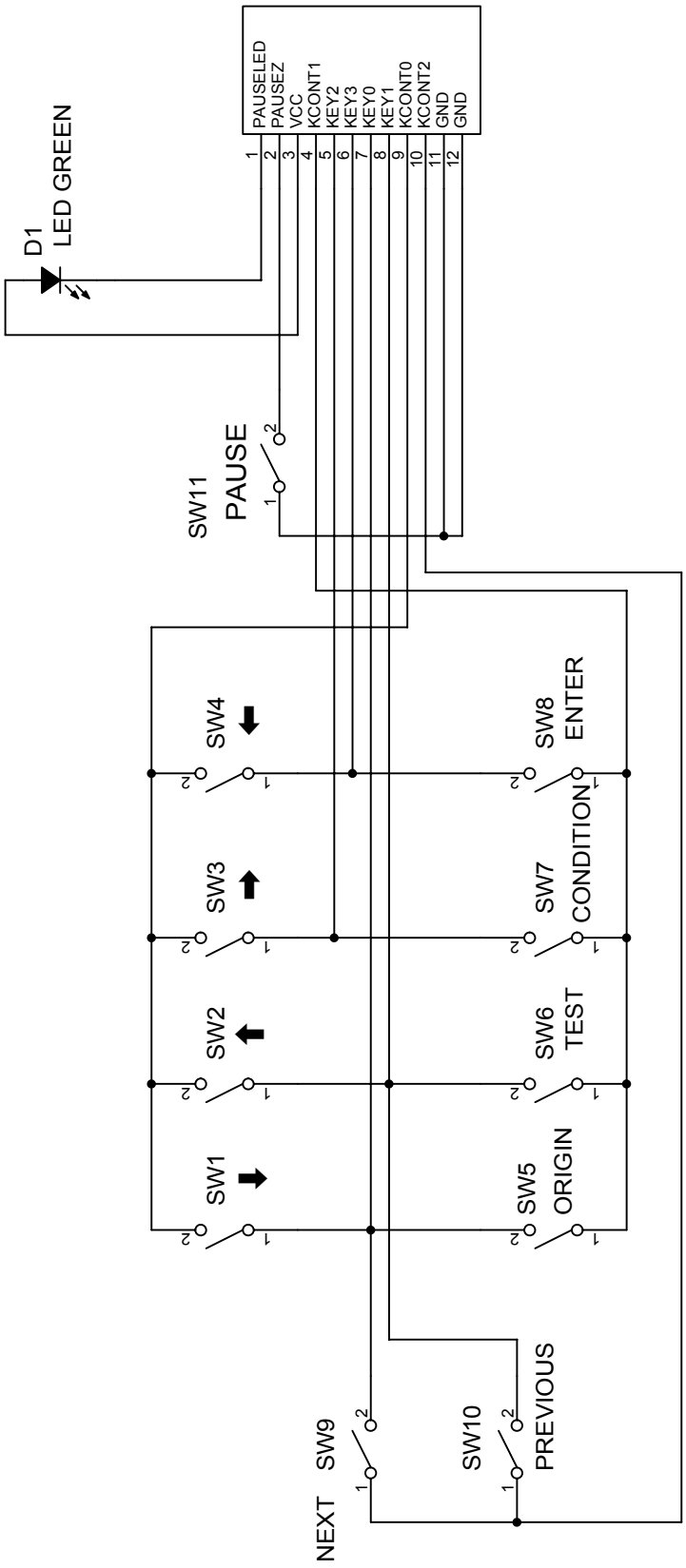
11.2.7 Main Board Memory Block Section (PN5043-01A)



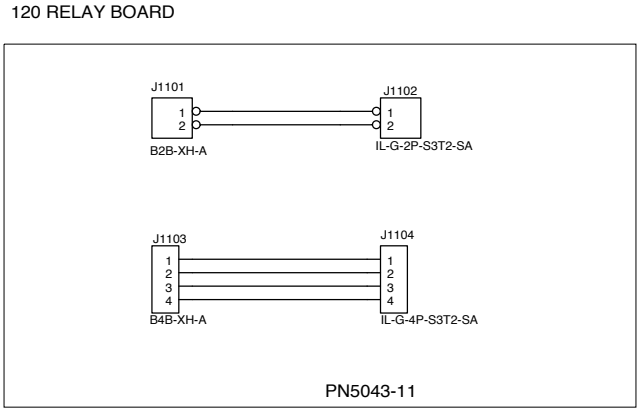
11.2.8 Relay and Sensor Board Section

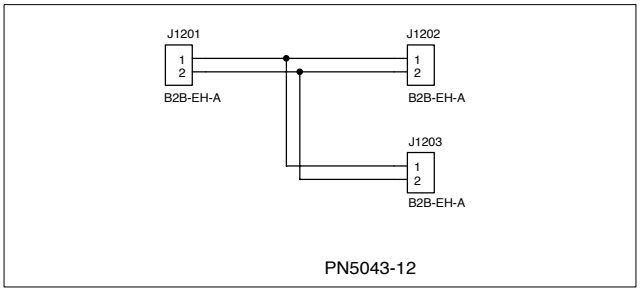


11.2.9 Control Panel Membrane Switch Panel Section

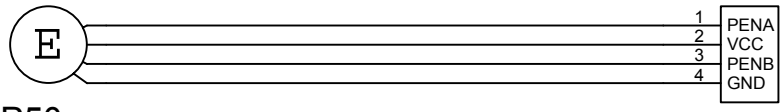


11.2.10 120-Relay Board Section





11.2.11 120-Pen Encoder Flexible Cable Section (PN5043-10)



HEDS-9720#P50